ANNOUNCEMENT OF THE COMPREHENSIVE TECHNICAL COURSE IN RUBBER MANUFACTURE

THE RUBBER AGE

A Balata Bleeders' Camp

June 11th
1917

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BY
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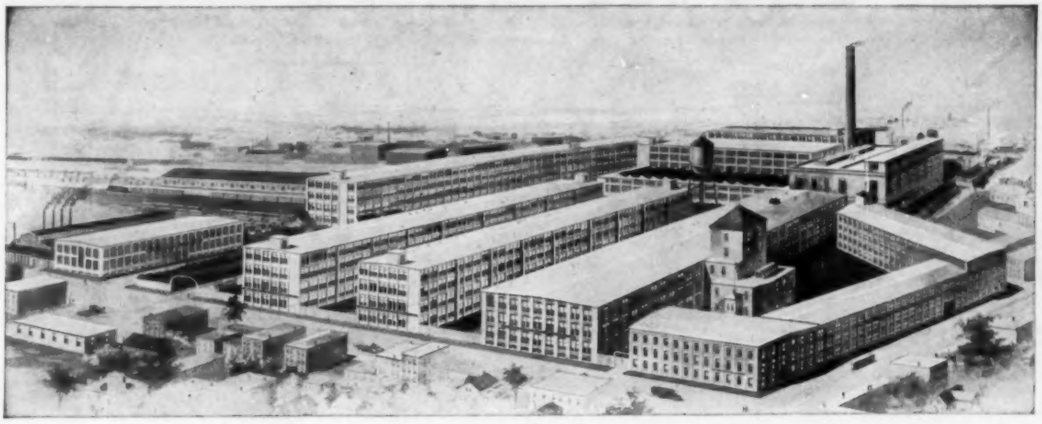

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THE RUBBER AGE

JUNE 11, 1917 VOL. I. NO. 6

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THE RUBBER AGE

How Hand Made Tire Casings Are Built

The component parts of tires, made up and turned into the stock room in the manner described in the two previous issues of THE RUBBER AGE, are there " batched " and placed in galvanized boxes, each large enough to contain all the parts of one tire casing.

The tire builders in the factory of the Gryphon Rubber & Tire Co., New York City, are required to present to the stock room requisitions for all the materials they receive for each tire they are to build and they must account for the use of all the material they receive.

If a builder spoils a part, a side wall strip, for instance, he is obliged to make known his mistake by returning the damaged part to obtain a fresh one. The tire maker must also return to the stock room all the scraps left from making his tire. This system works well to make an orderly shop and for saving stock.

Where tire makers have free access to the stock it has been found that they have no hesitancy in scrapping much good material. For example, a maker needs ten inches of breaker strip; if he can get at the rolls of breaker strip, he will more often than not cut these ten inches from a fresh strip, which he will neglect to roll up again properly, and the next man who needs some " breaker " will cut into another fresh strip instead of using the piece his fellow worker has already cut from. This results in producing a needless amount of scrap, which cannot occur where the tire maker has to account for everything he gets and where the stockman intelligently hands out all odds and ends where they can be used and keeps the accumulation of scrap at a minimum.

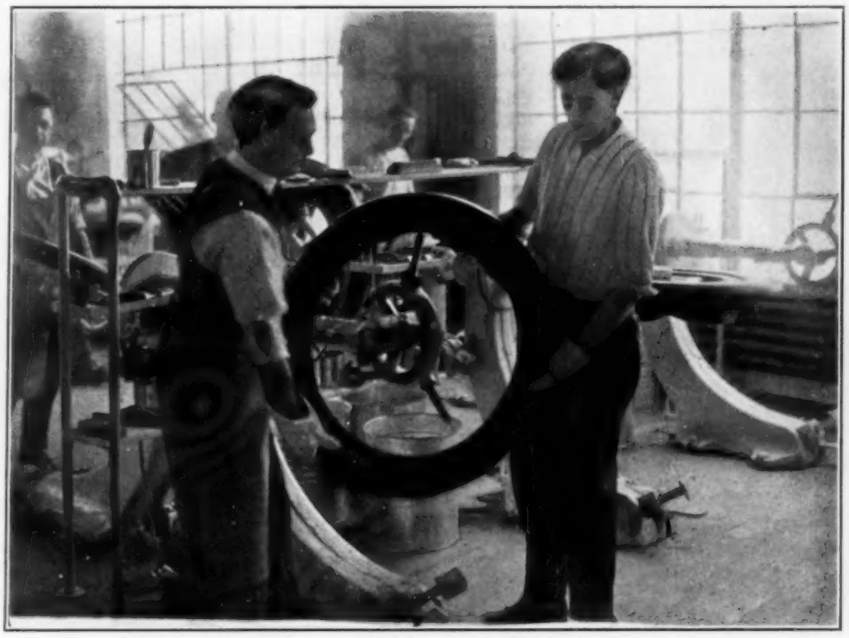

FIG. 1—PLACING TIRE CORE ON BUILDING JACK

Preparing Cores

Provided with his box of tire parts, the tire maker proceeds to prepare the cores upon which he builds his tires. These cores are in one piece for small tires up to 34 x 4 inches, and in four sections for the larger sizes. Cores are of different shapes according to whether the tire is to be a " straight-side," a " clincher," or a " Q. D."

The one-piece cores for small tire sizes are solid iron castings. Collapsible cores are hollow, and are also made of cast iron, the sections being held in position by rings and locks that are made " fool proof " to guard against the danger of their collapsing before the finished tire has been vulcanized.

With the assistance of a helper the tire maker places the core on the web of the tire building jack in the manner shown in Fig. 1. The spindles of this web are threaded so that they can be adjusted by revolving them. By tightening them the core is firmly held much as spokes hold a wheel felly.

The tire jacks shown in Fig. 1 and following illustrations are of an improved type adapted for making tires by hand, and they serve to hold the core and tire in the various positions best suited to facilitate the work of the tire builder. The spider is provided with a ratchet to prevent its rotation in one direction when this is desirable. The large, ribbed pedal serves as a foot rest in stretching on the plies of fabric when the smaller pedal controls a lock that holds the arm on which the core holding web is mounted. By pressing down this pedal the web and core can be swung to any desired angle to facilitate the building operation.

The stand between the rows of tire jacks holds a can of cement, shears, rollers, and other tools used in casing construction. One of the iron cans or boxes, as they are usually called, which are seen in Fig. 1, contains the parts of the tire as delivered from the stock room, and the other scraps.

FIG. 2—STRETCHING A BAND ON A CORE

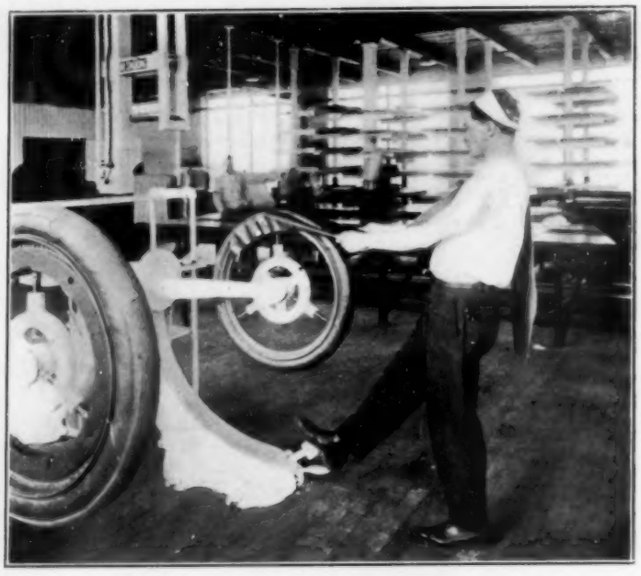

FIG. 4—STRETCHING THE FIRST PLY OF FABRIC ON BAND

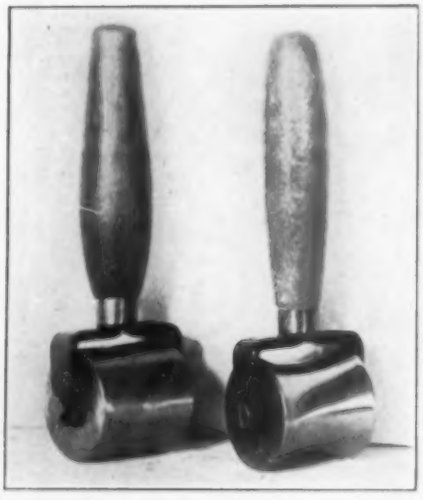

FIG. 3A—BALL-BEARING ROLLERS

When the core is in place on the "jack," it is scraped, emery papered, cleaned with gasoline, and rubbed until thoroughly smooth and dry. Then it is painted with a special rubber cement, which is very sticky and facilitates the building of the tire on the core, but over-cures during vulcanization and breaks away easily when the tire has been cured.

The next step is to place the "band," the first ply of fabric, upon which the tire is built. As explained in a previous article, this band is made up of strips of fabric spliced end to end. It requires the combined strength of two men to stretch and spring this band on to the core in the manner shown in Fig. 2. The rubber coated side of the band is on top.

Once on the core, the "band" is rolled with hand rollers, shown in Figs. 3A and 3B, so that it adheres firmly and smoothly, and without any air pockets, to the core. The special

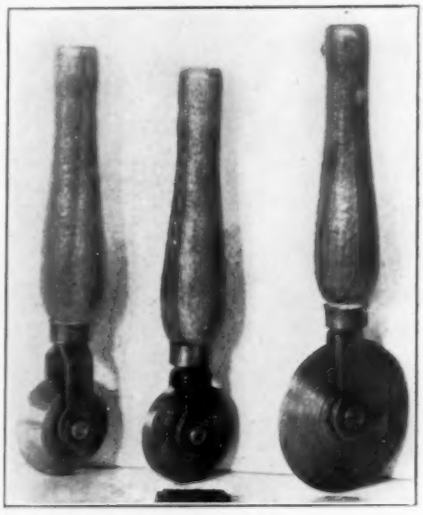

FIG. 3B—TWO ROLLERS AND A STITCHER

FIG. 5—ROLLING DOWN PLIES OF FABRIC IN BUILDING CARCASS

FIG. 6—PLACING A BEAD

FIG. 7—A VIEW OF TIRE BUILDING OPERATIONS. TO THE RIGHT IS SHOWN HOW THE BREAKER STRIP IS APPLIED

cement with which the core is coated holds the fabric band firmly to it.

With the " band " in position, the first ply of fabric is attached by rolling one of its ends to the " band." The ply of fabric is then stretched around the band in the manner shown in Fig. 4 and rolled firmly on to it in the manner shown to the left of Fig. 5.

Several plies of fabric are in this manner stretched and rolled tightly one on top of the other. The number of plies varies with the size of the tire from four to eight. When the second, or third, or fourth ply has been applied, as the case may be, depending on the size and design of the tire, the beads are put in place.

For accuracy in the placing of these beads, a jig called " bead placing ring " is used in the manner shown in Fig. 6. First the ring is placed in position, and then the bead is rolled down around it. In this manner the bead is sure to be in correct position.

After the beads have been placed, the balance of the plies of fabric constituting the carcass are applied in the manner described, care being taken that there be no " pile ups," that no two or more seams be within three inches of one another and that all air pockets are eliminated .

Cushion, Treads, Side Strips and Marking Strips

The carcass completed, the first " cushion strip " of live rubber is applied over its " crown " in the manner shown to the right of Fig. 7. Over this strip comes the " breaker " and another " cushion strip." Each is rolled and stitched with tools such as are shown in Fig. 3, and constitute the " cushion " which protects the carcass from shocks that are not absorbed by the tread.

Fig. 8 shows the tread as it is being applied. When the tread has been rolled and stitched, " side strips " are put into position to cover the side walls of the carcass which are shown exposed in the illustration.

The next step is to apply " marking strips " to cover the seams between the side wall strips and the tread and prevent the tread stock from overrunning the latter during vulcanization. These "marking strips" serve to give the tire a neat appearance.

An inspector supervises all the work of the tire makers and inspects it at each and all stages of its progress.

"Dead Men"

When the tire is completely built

FIG. 8—PLACING THE TREAD OVER THE CUSHION

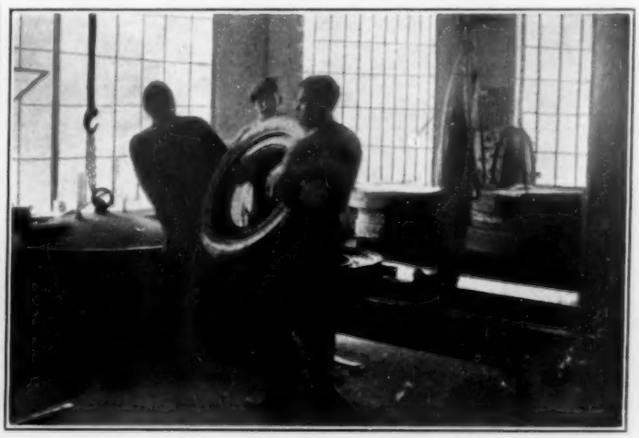

FIG. 9—PLACING A TIRE IN A MOLD

FIG. 10—CLOSING A VULCANIZING PRESS

FIG. 11—REMOVING THE TIRE FROM THE MOLD

and inspected a tag card and a strip of aluminum are attached to it. It is then removed from the building jack and placed on a special rack usually known as a "dead man," where it is allowed to rest at least 24 hours, so that all traces of solvents that may have been used in the course of its building will have disappeared before it is heated for curing.

The "dead man" with its tires can be lifted and moved by a special truck and taken to the vulcanizing room, where the tires are placed in molds together with the strips of aluminum which bear in relief a serial number which is impressed into the wall of the tire during vulcanization. Small discs of red rubber are placed over depressions in the mold to make the red trade mark of the Gryphon tire. Fig. 9 shows a tire being placed in a mold.

FIG. 12—REMOVING THE TIRE FROM THE CORE

Molds

Two part molds are used. They are of cast iron, accurately turned up on lathes and the depressions that serve to form the tread design and the markings of the tire, other than its serial number, are milled into their inner surface. The tire on its core is placed in the mold, the parts of

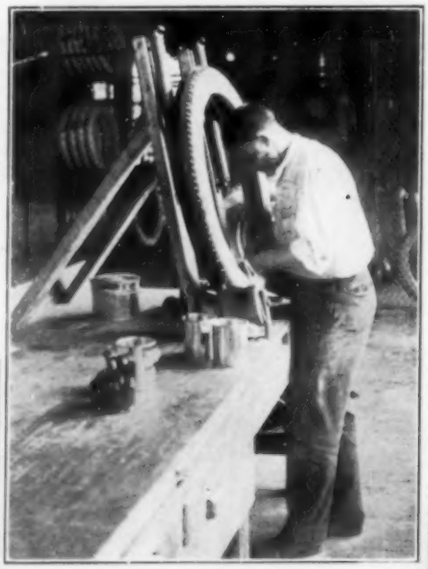

FIG. 13—FINISHING A TIRE

which are very heavy and are handled by means of compressed air hoists visible in Figs. 9, 10, and 11.

Vulcanizing

When a sufficient number of tires have been closed in molds, the latter are placed in a vertical closed vulcanizing press, which consists of a steel chamber the head of which extends through the floor of the vulcanizing room.

Inside of this chamber is a large platen arranged on the end of a ram. This platen is raised to the top of the chamber and then lowered gradually as the molds containing the tires are placed upon it, until the chamber is filled. The head, or cover is then swung into position, as shown in Fig. 10. This cover is locked by using an iron bar to turn it and force its lugs under those of the shell ring of the chamber, the internal steam pressure acting on the cover, and its packings seal the vulcanizing chamber.

The instrument board visible in Fig. 10 is then set into operation. The hand of the large dial to the left of the board is set for the time required for curing, the governor in the middle of the board is adjusted for the desired temperature and pressure, a button that puts the apparatus into operation is pushed, steam is turned on, and from then on the heater practically cares for itself. It takes care of air, wet steam and con-

FIG. 14—WASHING A FINISHED TIRE ON A REVOLVING DRUM

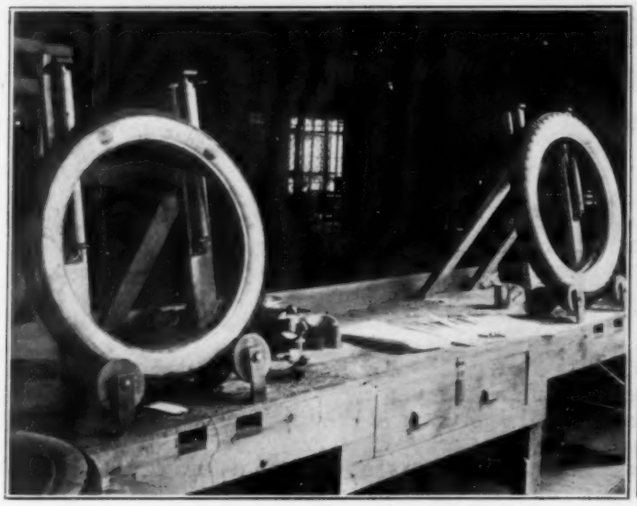

FIG. 15—FINISHED TIRES ON INSPECTION TABLE

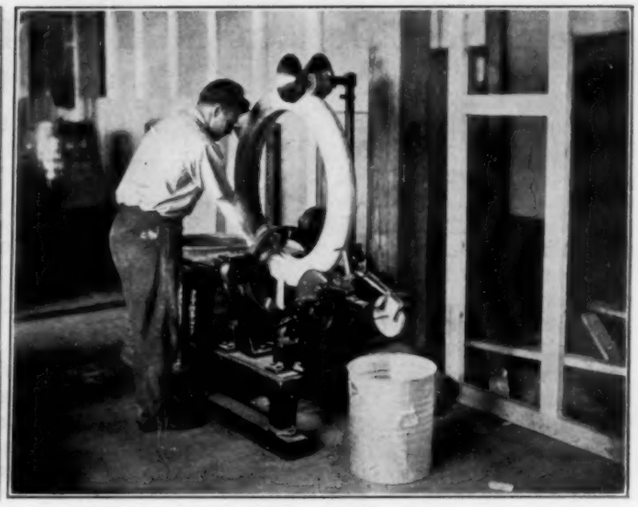

FIG. 16—WRAPPING AND LABELING TIRES

densation, shuts off steam when the cure is finished, opens the blow-off valve and rings an alarm bell to attract the attention of the men to the fact that they should open the press.

When vulcanization is completed the molds are removed from the press, opened, and the tires removed from them in the manner shown in Fig. 11. Small tires together with their cores are rolled to a heavy iron table on which they are clamped and the tire removed from the core by use of tire irons in the manner shown in Fig. 12.

In the case of large tires, the rings of the cores are released, causing the cores to collapse.

Finishing and Inspecting

The tires pass from the vulcanizing to the finishing department, where they are placed on special tables, such as the one shown in Fig. 13, and on revolving drums like the one shown in Fig. 14. Overflow from the molds is removed and the tires are cleaned before being placed on the inspection table, Fig. 15, where they are carefully examined and graded. The slightest imperfection causes a tire to be graded as a "second."

Wrapping

After inspection, tires are automatically wrapped in special paper by a machine shown in Fig. 16. They are then tagged and placed in racks in a stock room ready for shipment. Fig. 17 shows a corner of the stock room.

Book Reviews

CANADIAN TRADE INDEX, 1916-18 Edition. 560 pp., cloth. Canadian Manufacturers' Association, Toronto, Canada. $5.00.

This book will be found of great value to all buyers of Canadian manufactured goods and all those who have merchandise to sell to such manufacturers, for it gives a dependable list of the articles made in Canada and the name of the manufacturers making them.

A continuous alphabetical list gives the name and address of every manufacturer appearing in the classified section, together with the various lines, branches, export representatives, etc., of the firms where this information has been available.

A French index of headings supplements an English list of headings, which appear in the classified section. Rubber manufacturers are classified under nine headings, which are: Mechanicals, Molded Goods and Sundries, Sanitary, Seamless, Rubbers (Footwear), Rubber Proofing, Reclaimed, Bottling Machine Rubbers.

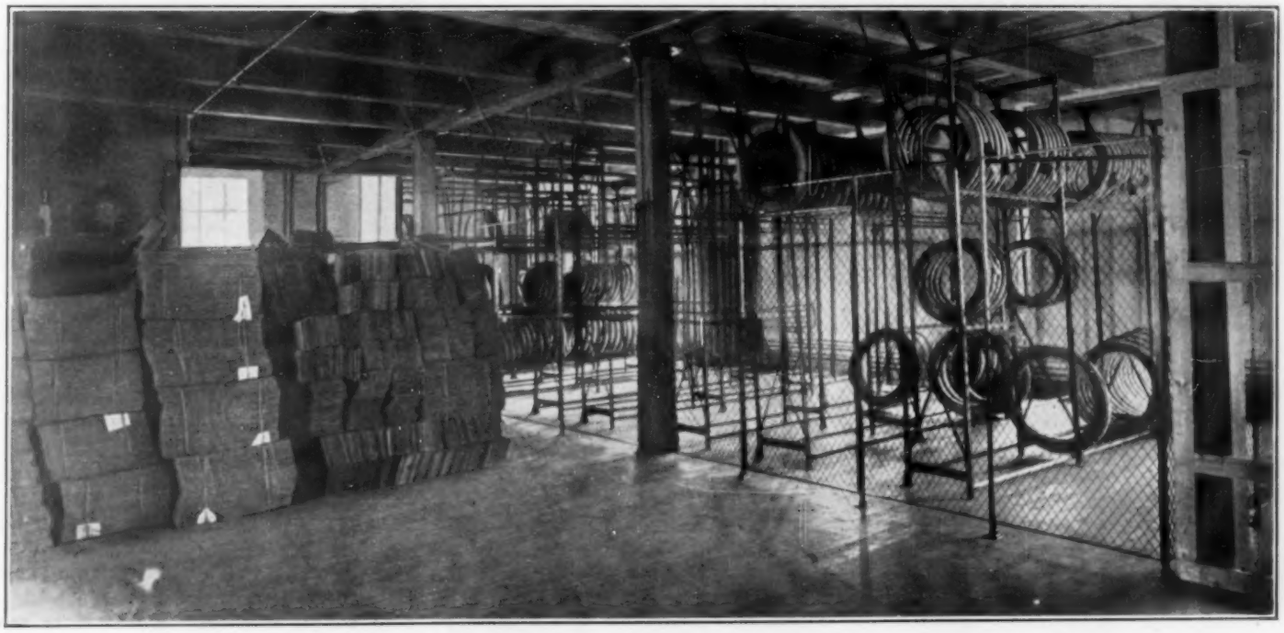

FIG. 17—VIEW OF A TIRE STOCK ROOM

The Salvage Department in the Large Manufacturing Organization

By Francis R. Peabody*

Factory executives have wrestled with the problem of reducing the amount of waste material from the earliest days of organized manufacturing. They have constantly sought to eliminate all but the very necessary waste and to utilize or dispose of, to the best possible advantage, such by-products as were unavoidable.

Results, however, until a comparatively short time ago, fell far short of the demands and hardly could be said to have justified the efforts expended, in this country at least. With the advent of what has come to be known as scientific management, and with the growing realization of the enormous wastes which have accompanied practically all lines of American industry, the problem is being made the subject of scientific study by manufacturers who are employing specialists for that very purpose

Waste material which in times past has been designated as " junk " to be indescriminately sold to the ragman at the best price he will pay to get it off the manufacturer's hands at the earliest possible moment, is now dignified by the name of salvage, and all manufacturing establishments of any consequence have a more or less thoroughly organized department to handle it.

A few industries, especially the older and highly specialized ones such as cotton manufacture, have in the process of time reduced wastage of material to what is perhaps the minimum, but no line of manufacture with which the writer is at all familiar is entirely free of by-products which require methods of disposition different from the primary products of the establishment producing them.

Probably the rubber business has a greater number of material wastes to contend with than any other single manufacturing industry, and this is due to a variety of causes.

In the first place, the multiplicity of raw materials and the complexity of the combinations in which these materials are used, of itself makes for a very large amount of material which in one way and another is rendered unfit for use in regular goods and becomes waste, or rather salvage.

Again the comparative youth of the rubber industry, together with its unusually rapid growth, especially within the past fifteen years, account, for the fact that these wastes have not yet been brought to that irreducible minimum which is the goal of every manager.

Finally the rubber factory has, in addition to those special problems which have to do with the profitable marketing of waste material of purely rubber origin, the other wastes which are common to most other manufacturing establishments of size, as waste paper and other material from the offices, and metallic wastes from the mechanical departments, scrapped machinery, etc., which is a very big item with the larger rubber factories.

In the operation of a salvage department there are two things to work for and to keep constantly in mind: First, the prevention of material waste; and second, the profitable disposal of all such as cannot possibly be avoided.

Strictly speaking the first is more a function of the efficiency engineer in the production departments, but by the very nature of its work, the salvage department is in the best possible position to check up all material wastes of the establishment, and in very many cases to point out the remedy.

The reason for this can best be shown by an outline of a plan of organization for a salvage department which will in some of its functions be practically automatic in its workings.

The first and most important requisite is sufficient space in which to carry on the work, and the more central location the better, although this is not absolutely essential, and in some cases, if transportation conditions admit, it may be located entirely outside the plant which it serves.

This space should consist of adequate outside or yard room and such buildings to be used as workrooms and warehouses as the particular needs of the business call for.

In the laying out of the ground space as to locations of open storage space and buildings, and the equipment of both with labor saving machines and devices, as much thought and care should be exercised as in any other department of the business. It is quite as essential that this work be carried on as economically as any other, and in some respects it is even more important than in the producing departments, as the key-note of the organization is that of economy and efficiency. The salvage department should be and can be made to be an object lesson to all the other departments in this respect, and its influence should be felt in many ways which cannot be directly measured in dollars and cents by any system of book-keeping.

The open yard space should be, if possible, in regular and rectangular form, and, to be complete, should be equipped with a traveling crane or some equally good appliance for easily handling heavy materials such as discarded machinery, metallic scrap, etc.

A traveling crane not only provides an economical method of handling all such heavy material, but also permits of a more compact system of storage, as no roadways need be left open, and the only limit of height to which material may be piled is the lift of the crane and the nature of the material to be stored.

This yard should be classified as thoroughly as possible, a certain definite space being allotted to discarded machinery, another for scrap lumber, another for the assembling of empty barrels and metallic containers which are collected and held for return or sale, and any other divisions or subdivisions as may be found desirable.

Another portion of this yard should be used for the collection of all metallic scrap and open bins should be arranged near this space into which the metals should be sorted and held for sale.

As a rule, the closer this sorting is carried, the better prices for the various classes of material may be obtained, as this is one of the principal ways by which the established junk dealer makes his profit.

The buildings, of which there should be at least two, should be located so as to be served by the crane, to make the whole plant as flexible as possible.

One building should be used for workrooms, and another for warehouse purposes. The latter is particularly important, as it is often necessary to store materials which have been prepared for sale for considerable lengths of time to take advantage of changing markets or to accumulate enough of a given grade to secure the best prices.

The arrangement and equipment of the workrooms will be governed by local conditions, but should be such as will afford the fullest facilities for carrying on the work in hand.

To this salvage plant all discarded or waste material from the regular manufacturing departments should be brought, and right here is where the department gets the necessary data for the applications of its function of prevention.

As records, carefully taken and intelligently analyzed are the foundation of all efficiency work, it is an accurate account of all material re-

* Manager Salvage Department Firestone Tire & Rubber Co., Akron, Ohio.

ceived from day to day, all divisions and sub-divisions being kept carefully separate, which will show to the salvage manager just how the regular wastes are running. A comparison of these figures day by day, week by week and month by month based on the production of the manufacturing departments will indicate at once any unusual increase in the volume of these waste products.

In times of extreme manufacuring activity, such as we now find in the rubber industry, the entire thought of the general management is directed, and very properly so, to the maximum production of standard grade goods, and minor economies are neglected to a very great extent, especially as to the matter of material wastes. Perhaps it is not exactly proper to say that they are neglected. Such matters are never neglected entirely, but the responsibility may be very largely transferred to the salvage department.

This is productive of very satisfactory results, provided, of course, the unnecessary leakages discovered by this department are stopped. The salvage department is not hampered by the necessity of getting out a certain amount of goods each day, hence, it is in a better position to study the nature of these wastes than is the production engineer.

The other general division of the work of the salvage department is the profitable utilization of the irreducible minimum of material wastes.

This work gives a much wider field in which to work, and in the rubber business a comparatively new one and offers a great opportunity for the exercise of imagination and ingenuity.

The problem confronting the salvage manager is this: Here are iron, steel, brass, copper, cotton, rubber, pigments, chemicals, fabricated and combined in numerous and sundry ways. First, can any or all of it be utilized in this factory or elsewhere without change? Second, if and where this is not possible, how may these scraps be broken up or recombined so that their constituent materials become marketable products?

The first consideration should always be to utilize this material within the manufacturing establishment itself, and in this manner the salvage department becomes a clearing house for the entire plant, as it is often found that material which is waste in one department may be, or may be modified to become, raw material in another. This is true not only of a great amount of discarded machinery and mechanical equipment, but also of waste rubber products themselves, in a departmentalized rubber factory making a full line of rubber products. On any and all such material returned for use in the factory, an additional profit is shown, as it does not pass through any outside middleman's hands.

Although quite a large proportion of the scrap material received by the salvage department may be thus handled, there still remains a considerable amount of material which has to be disposed of by sale and this becomes the next problem which has to be taken care of.

Certain classes of scrap material, particularly those which are common to almost all industries, have well established grades into which they may be sorted and find a ready market and are subject to general market conditions and prices are quoted in market reports.

This is true of metallic wastes and cotton fabrics, and the principal work of the salvage department, so far as these are concerned, is to carefully sort them into the proper grades to dispose of them to the best advantage.

In the matter of wastes of purely rubber origin, these classifications are not quite so well established, because of the frequent changes in materials and methods.

It is the business of the salvage department to sort all this material into such classes as will yield the best prices from the waste dealers, and whenever in the best judgment of the experts of the department a condition arises where a change of classification becomes profitable such change should at once be made and a market sought for the new grade of material so produced.

This is one of the conditions which makes the work of this department anything but a humdrum of established routine and makes the field of activity always open for enlargement and improvement.

There is constant opportunity for the exercise of originality in increasing the values of all materials brought within the reach of its influence, and working in the firm belief that there is a place for every material thing, it stimulates the ambition of every member of the organization to find the places where every ounce of material received may be disposed of to commercial advantage.

The whole policy of a properly constituted salvage department may be expressed in two phrases, which should be kept constantly in mind by all members of the organization.

"There is unnecessary waste of material now going on within this factory—*stop it.*"

"There is a profitable use for every bit of material which comes here as unavoidable waste—*find it.*"

Specific Gravity Factors

By C. S. Redfield

The object of the following tables is to enable one to determine the specific gravity of a rubber compound by a simple process of addition. So that it is not necessary to mix the compound in order to find its specific gravity.

Table I covers the most common compounding ingredients, while Table

Table I.

	1	2	3	4	5	6	7	8	9
Rubber	1.0869	2.1739	3.2609	4.3478	5.4348	6.5218	7.6087	8.6957	9.7826
Pontianak	.9524	1.9048	2.8571	3.8095	4.7619	5.7143	6.6667	7.6190	8.5714
Aluminum Flake	.3906	.7813	1.1719	1.5625	1.9531	2.3438	2.7344	3.1250	3.5156
Antimony	.3226	.6452	.9677	1.2903	1.6129	1.9355	2.2581	2.5806	2.9032
Asbestine	.3623	.7246	1.0869	1.4493	1.8116	2.1739	2.5362	2.8986	3.2608
Asbestos	.4255	.8511	1.2766	1.7021	2.1277	2.5532	2.9787	3.4043	3.8298
Barytes	.2222	.4444	.6667	.8889	1.1111	1.3333	1.5555	1.7778	1.9999
China Clay	.3846	.7692	1.1538	1.5385	1.9231	2.3077	2.6923	3.0769	3.4615
Cork	4.1666	8.3333	12.5000	16.6666	20.8333	25.0000	29.1666	33.3333	37.5000
Corn Starch	.6536	1.3072	1.9608	2.6144	3.2679	3.9216	4.5752	5.2288	5.8824
Fossil Flour	.3846	.7692	1.1538	1.5385	1.9231	2.3077	2.6923	3.0769	3.4615
Glycerine	.8000	1.6000	2.4000	3.2000	4.0000	4.8000	5.6000	6.4000	7.2000
Lampblack	.5714	1.1429	1.7143	2.2857	2.8571	3.4286	4.0000	4.5714	5.1429
Lime	.4149	.8299	1.2448	1.6598	2.0747	2.4896	2.9046	3.3195	3.7344
Litharge	.1064	.2128	.3192	.4255	.5319	.6383	.7447	.8511	.9574
Lithopone	.2631	.5263	.7895	1.0526	1.3158	1.5789	1.8421	2.1053	2.3684
MR	1.0000	2.0000	3.0000	4.0000	5.0000	6.0000	7.0000	8.0000	9.0000
Magnesia Carb., Lt.	.5747	1.1494	1.7241	2.2989	2.8736	3.4483	4.0229	4.5977	5.1724
Magnesia Carb., Hvy	.3333	.6667	.9999	1.3333	1.6667	1.9999	2.3333	2.6667	2.9999
Magnesia Calcined	.3155	.6309	.9464	1.2618	1.5873	1.9027	2.2182	2.5337	2.8491
Palm Oil	1.0846	2.1692	3.2538	4.3384	5.4230	6.5076	7.5922	8.6768	9.7614
Paraffin	1.1429	2.2957	3.4286	4.5714	5.7143	6.8572	8.0000	9.1429	10.2857
Red Oxide	.1908	.3817	.5726	.7634	.9542	1.1450	1.3359	1.5267	1.7176
Sulphur	.5000	1.0000	1.5000	2.0000	2.5000	3.0000	3.5000	4.0000	4.5000
Substitute Black	.9091	1.8182	2.7273	3.6364	4.5455	5.4545	6.3636	7.2727	8.1818
Substitute White	1.0000	2.0000	3.0000	4.0000	5.0000	6.0000	7.0000	8.0000	9.0000
Talc	.5000	1.0000	1.5000	2.0000	2.5000	3.0000	3.5000	4.0000	4.5000
Tar	.7874	1.5748	2.3622	3.1496	3.9370	4.7244	5.5118	6.2992	7.0866
Vaseline	1.1905	2.3809	3.5714	4.7619	5.9524	7.1429	8.3334	9.5238	10.7143
Vermillion	.1232	.2463	.3695	.4926	.6158	.7389	.8621	.9852	1.1084
Vorite	1.0173	2.0346	3.0519	4.0692	5.0865	6.1037	7.1210	8.1383	9.1556
White Lead	.1538	.3077	.4615	.6154	.7692	.9231	1.0769	1.2308	1.3846
White Lead Sub.	.1613	.3226	.4839	.6452	.8065	.9677	1.1290	1.2903	1.4516
Whiting	.3676	.7353	1.1029	1.4706	1.8382	2.2059	2.5735	2.9412	3.3088
Zinc	.1786	.3571	.5357	.7143	.8928	1.0714	1.2499	1.4286	1.6071

Table II. Factors for Reclaims

Sp. Gr. Recl.	1	2	3	4	5	6	7	8	9
.98	1.0204	2.0408	3.0612	4.0816	5.1021	6.1225	7.1429	8.1633	9.1837
.99	1.0101	2.0202	3.0303	4.0404	5.0505	6.0606	7.0707	8.0808	9.0909
1.00	1.0000	2.0000	3.0000	4.0000	5.0000	6.0000	7.0000	8.0000	9.0000
1.01	.9901	1.9802	2.9703	3.9604	4.9505	5.9406	6.9307	7.9208	8.9109
1.02	.9804	1.9608	2.9216	3.9216	4.9019	5.8823	6.8627	7.8431	8.8235
1.03	.9709	1.9417	2.9126	3.8835	4.8544	5.8252	6.7961	7.7669	8.7378
1.04	.9615	1.9231	2.8846	3.8462	4.8077	5.7692	6.7308	7.6923	8.6539
1.05	.9524	1.9048	2.8571	3.8095	4.7619	5.7143	6.6667	7.6190	8.5714
1.06	.9434	1.8868	2.8302	3.7736	4.7170	5.6604	6.6038	7.5472	8.4906
1.07	.9346	1.8692	2.8037	3.7483	4.6729	5.6075	6.5421	7.4766	8.4112
1.08	.9259	1.8519	2.7778	3.7037	4.6297	5.5556	6.4815	7.4074	8.3334
1.09	.9174	1.8349	2.7523	3.6697	4.5872	5.5046	6.4220	7.3394	8.2569
1.10	.9091	1.8182	2.7273	3.6364	4.5455	5.4545	6.3636	7.2727	8.1818
1.11	.9009	1.8018	2.7027	3.6036	4.5043	5.4054	6.3063	7.2072	8.1081
1.12	.8929	1.7857	2.6786	3.5714	4.4643	5.3572	6.2500	7.1429	8.0357
1.13	.8849	1.7699	2.6549	3.5398	4.4248	5.3098	6.1947	7.0797	7.9646
1.14	.8772	1.7544	2.6316	3.5088	4.3859	5.2631	6.1403	7.0175	7.8947
1.15	.8696	1.7391	2.6087	3.4783	4.3479	5.2174	6.0869	6.9566	7.8261
1.16	.8621	1.7241	2.5862	3.4483	4.3104	5.1724	6.0345	6.8966	7.7586
1.17	.8547	1.7094	2.5641	3.4188	4.2735	5.1282	5.9829	6.8376	7.6923
1.18	.8475	1.6949	2.5424	3.3898	4.2373	5.0848	5.9322	6.7797	7.6271
1.19	.8403	1.6807	2.5210	3.3614	4.2017	5.0420	5.8824	6.7227	7.5631
1.20	.8333	1.6667	2.4999	3.3333	4.1667	4.9999	5.8333	6.6666	7.4999
1.21	.8265	1.6529	2.4794	3.3058	4.1323	4.9587	5.7852	6.6116	7.4381
1.22	.8197	1.6393	2.4590	2.2787	4.0984	4.9180	5.7377	6.5574	7.3770
1.23	.8130	1.6260	2.4390	3.2520	4.0651	4.8781	5.6911	6.5041	7.3171
1.24	.8065	1.6129	2.4194	3.2258	4.0323	4.8387	5.6452	6.4516	7.2581
1.25	.8000	1.6000	2.4000	3.2000	4.0000	4.8000	5.6000	6.4000	7.2000
1.26	.7937	1.5873	2.3809	3.1746	3.9683	4.7619	5.5556	6.3492	7.1429
1.27	.7874	1.5748	2.3622	3.1496	3.9370	4.7244	5.5118	6.2992	7.0866
1.28	.7813	1.5625	2.3438	3.1250	3.9063	4.6875	5.4688	6.2500	7.0313
1.29	.7752	1.5504	2.3256	3.1008	3.8759	4.6511	5.4263	6.2015	6.9767
1.30	.7692	1.5385	2.3077	3.0769	3.8462	4.6154	5.3846	6.1538	6.9231
1.31	.7634	1.5267	2.2901	3.0534	3.9168	4.5802	5.3435	6.1069	6.8702
1.32	.7576	1.5152	2.2727	3.0303	3.7879	4.5455	5.3031	6.0606	6.8182
1.33	.7519	1.5038	2.2556	3.0075	3.7594	4.5113	5.2632	6.0150	6.7666
1.34	.7463	1.4925	2.2388	2.9851	3.7314	4.4776	5.2239	5.9702	6.7164
1.35	.7407	1.4815	2.2222	2.9629	3.7037	4.4444	5.1852	5.9259	6.6667
1.36	.7353	1.4706	2.2059	2.9412	3.6765	4.4117	5.1470	5.8823	6.6176
1.37	.7299	1.4599	2.1898	2.9197	3.6497	4.3796	5.1095	5.8394	6.5694
1.38	.7246	1.4493	2.1739	2.8986	3.6232	4.3478	5.0725	5.7971	6.5218
1.39	.7194	1.4388	2.1583	2.8777	3.5971	4.3165	5.0359	5.7554	6.4748
1.40	.7143	1.4286	2.1429	2.8572	3.5715	4.2857	5.0000	5.7143	6.4286
1.41	.7092	1.4184	2.1277	2.8369	3.5461	4.2553	4.9645	5.6738	6.3829
1.42	.7042	1.4084	2.1127	2.8169	3.5211	4.2253	4.9295	5.6338	6.3379
1.43	.6993	1.3986	2.0979	2.7972	3.4965	4.1958	4.8951	5.5944	6.2937
1.44	.6944	1.3889	2.0833	2.7778	3.4722	4.1666	4.8611	5.5555	6.2499
1.45	.6897	1.3793	2.0689	2.7586	3.4483	4.1379	4.8276	5.5173	6.2069
1.46	.6849	1.3699	2.0548	2.7397	3.4247	4.1096	4.7945	5.4794	6.1644
1.47	.6803	1.3605	2.0408	2.7211	3.4014	4.0816	4.7619	5.4422	6.1224
1.48	.6757	1.3514	2.0270	2.7027	3.3784	4.0541	4.7298	5.4054	6.0811
1.49	.6711	1.3423	2.0134	2.6846	3.3557	4.0268	4.6979	5.3691	6.0403
1.50	.6667	1.3333	2.0000	2.6667	3.3333	4.0000	4.6667	5.3334	6.0000
1.51	.6623	1.3245	1.9868	2.6490	3.3113	3.9735	4.6358	5.2980	5.9603
1.52	.6579	1.3158	1.9737	2.6315	3.2895	3.9473	4.6052	5.2631	5.9210
1.53	.6536	1.3072	1.9608	2.6144	3.2679	3.9215	4.5751	5.2287	5.8823
1.54	.6494	1.2987	1.9481	2.5974	3.2468	3.8961	4.5455	5.1948	5.8442
1.55	.6452	1.2903	1.9355	2.5806	3.2258	3.8709	4.5161	5.1613	5.8034
1.56	.6410	1.2821	1.9231	2.5641	3.2052	3.8462	4.4872	5.1282	5.7693
1.57	.6369	1.2739	1.9108	2.5478	3.1847	3.8216	4.4586	5.0955	5.7325
1.58	.6329	1.2658	1.8987	2.5316	3.1646	3.7975	4.4304	5.0633	5.6962
1.59	.6289	1.2579	1.8868	2.5157	3.1447	3.7736	4.4025	5.0314	5.6604
1.60	.6250	1.2500	1.8750	2.5000	3.1250	3.7500	4.3750	5.0000	5.6250
1.61	.6211	1.2422	1.8634	2.4845	3.1056	3.7267	4.3478	4.9689	5.5901
1.62	.6173	1.2346	1.8518	2.4691	3.0864	3.7037	4.3209	4.9382	5.5555
1.63	.6135	1.2270	1.8405	2.4540	3.0675	3.6810	4.2945	4.9080	5.5215
1.64	.6098	1.2195	1.8293	2.4390	3.0488	3.6586	4.2683	4.8781	5.4878
1.65	.6061	1.2121	1.8182	2.4242	3.0303	3.6364	4.2424	4.8485	5.4545
1.66	.6024	1.2048	1.8072	2.4096	3.0121	3.2169	4.2169	4.8193	5.4217
1.67	.5988	1.1976	1.7964	2.3952	2.9940	3.5929	4.1916	4.7904	5.3892
1.68	.5952	1.1905	1.7857	2.3809	2.9762	3.5714	4.1667	4.7619	5.3572
1.69	.5917	1.1834	1.7752	2.3669	2.9586	3.5503	4.1420	4.7338	5.3255
1.70	.5882	1.1765	1.7647	2.3529	2.9412	3.5294	4.1176	4.7058	5.2941
1.71	.5848	1.1696	1.7544	2.3392	2.9240	3.5088	4.0936	4.6784	5.2632
1.72	.5814	1.1628	1.7442	2.3256	2.9070	3.4884	4.0698	4.6512	5.2326

II was made up to cover reclaims, where the specific gravity is very varying.

The numbers at the top of the columns represent the number of pounds. Up to nine pounds of any ingredient can be taken directly from the table. For more than nine pounds, take the nearest ten's place or hundredth's and add the digits or the tens and digits thus: 28 pounds would be considered as $2 \times 10 + 8$; 43 pounds would be $4 \times 10 + 3$; 318 pounds would be $3 \times 100 + 1 \times 10 + 8$.

For example: The factor for 28 pounds of aluminum flake would be $2 \times 10 + 8$, therefore for 20. = 7.813 (which is the factor for 2 with the decimal point moved one place to the right, which gives the factor for 2×10, plus 3.125, the factor for 8 pounds, or $2 \times 10 + 8 = 28$.

$.7812 \times 10 + 3.125 = 10.938 =$ the factor for 28 pounds aluminum flake.

Likewise the factor for 53 pounds of whiting would be

$$5 \times 10 + 3$$

Weight Lbs.	Oz.	Lbs.×16+Oz.		Material
	20	—	320	Smoked sheet
	19	8	312	Zinc oxide
	2	—	32	Litharge
	2	—	32	Barytes
	2	—	32	White lead
	1	7	23	Sulphur
	—	2	2	Lime
			753	

$$\text{Specific gravity} = \frac{753}{431.31} = 1.74$$

$$1.8382 \times 10 + 1.103 = 19.485$$

In case ounces appear in the compound multiply the number of pounds of each ingredient by 16 and add its number of ounces thus:

10 pounds 8 ounces = 168
12 pounds 3 ounces = 195

Rule for Using Tables

Divide the weight of the compound by the sum of the specific gravity factors, giving the specific gravity of the compound. Examples:

1. What is the specific gravity of the following compound?

Pounds	Material	Factors	
		5×10	
50	Smoked sheet	5.438×10	54.348
5	Pontianak	4.7619	4.762
		4×10	
40	Zinc oxide	.7143×10	7.143
2	Calcined magnesia	.6309	.631
4	Sulphur	2.0000	2.000
101			68.884

$$\text{Specific gravity} = \frac{101}{68.884} = 1.46$$

2. What is the specific gravity of the following?

Pounds	Material	Factor	
		1×10 + 6	
16	Ceylon	1.0869×10 + 6.522 =	17.401
8	Pontianak	7.619	7.619
		3x10 + 5	
35	Lithopone	.7895×10 + 1.316	9.211
		2×10	
20	Whiting	.7353×10	7.353
4	Sulphur	2.0000	2.000
5	Lime	2.075	2.075
		1×10 + 4	
14	Talc	.500×10 + 2.00	7.000
6	Vaseline	7.143	7.143
108			59.802

$$\text{Specific gravity} \frac{108}{59.802} = 1.805$$

3. If there is reclaimed stock in the batch use Table 2 for the factor for the reclaimed. Take the factor under the specific gravity corresponding to the specific gravity of the reclaimed used.

Specific gravity of reclaimed used 1.24.

Pounds	Material	Factor	
4	Ceylon		4.348
6	Pontianak		5.714
		Table II under 1.24	
		2×10 + 4	
24	Reclaimed tires	1.6129×10+3.226	19.355
1	Sulphur		.500
5	Red oxide		.954
2	Lime		.830
42			31.701

$$\text{Specific Gravity} \frac{42}{31.701} = 1.324$$

If the compound contains ounces proceed thus: multiply the pounds by 16 and add the ounces.

Factors	
3×100 + 2×10	
3.2609×10 + 2.174×10 =	347.83
3×100×1×10 + 2	
.5357×100 + .178×10 + 36 =	55.71
3×10 + 2	
.319×10 + .21 =	3.40
3×10 + 2	
.667×10 + .44	7.11
3×10 + 2	
.462×10 + .31	4.93
2×10 + 3	
1.000×10 + 1.50	11.50
2	
.83	.83
	431.31

Announcing the Technical Course in Rubber Manufacture

THE RUBBER AGE offers to the American rubber industry the comprehensive *Technical Course in Rubber Manufacture* that is being given at the Municipal University of Akron. This course, which is being taught under the direction of Prof. H. E. Simmons, B.S., M.S., head of the department of chemistry of the university, is being written by him in popular form to be printed in twenty-seven installments in THE RUBBER AGE beginning with the July 11th issue.

To be Published Serially in 27 Sections in *Th*

A Technical Course in

THE Municipal University of Akron for the past seven years has been conducting a comprehensive Technical Course in Rubber Manufacture—the only one in the world offered by an educational institution. The rubber laboratory of the University has been equipped by Akron rubber manufacturers who have actively cooperated in making the Course of the greatest value to the students.

This Course, which has attracted much attention in the rubber industry, is now being put into popular form for THE RUBBER AGE by Prof. H. E. Simmons, B.S., M.S., the head of the Department of Chemistry of the University and the director of the Knight Chemical Laboratory.

With the sanction of Dr. Parke R. Kolbe, president of the University, this Course will be published serially in THE RUBBER AGE. The first section will appear in the July 10 issue, and a section will be printed in each issue until the series is completed.

There is probably no one in the country better fitted to prepare a Technical Course in Rubber Manufacture than Professor Simmons, whose thoroughness in teaching the subject has created a larger demand from rubber manufacturers for graduates of the University than it has been able to supply. Professor Simmons' reputation as a rubber chemist is such that any treatise from his pen will be considered authoritative.

As outlined by Professor Simmons, this Course, which is practically the same as taught in the University, will be presented under the accompanying tentative schedule of section headings.

By H. E. SIMMON

Professor of Chemistry in the Junic

SCHEDULE

Introduction—The Laboratories and E
University of Akron.
Section 1.—The Botanical History of
Section 2.—Rubber of the Amazon
Section 3.—African Rubbers.
Section 4.—Central American Rubber
Section 5.—Plantations and Their De
Section 6.—Discussion of Colloids.
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n *The Rubber Age* Beginning July 10, 1917

n *Rubber Manufacture*

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The S. A. E. Tire and Rim Division Report

The Tire and Rim Division of the Society of Automotive Engineers has made the following recommendations which have been approved by the Standards Committee and will be submitted to the Society for adoption:

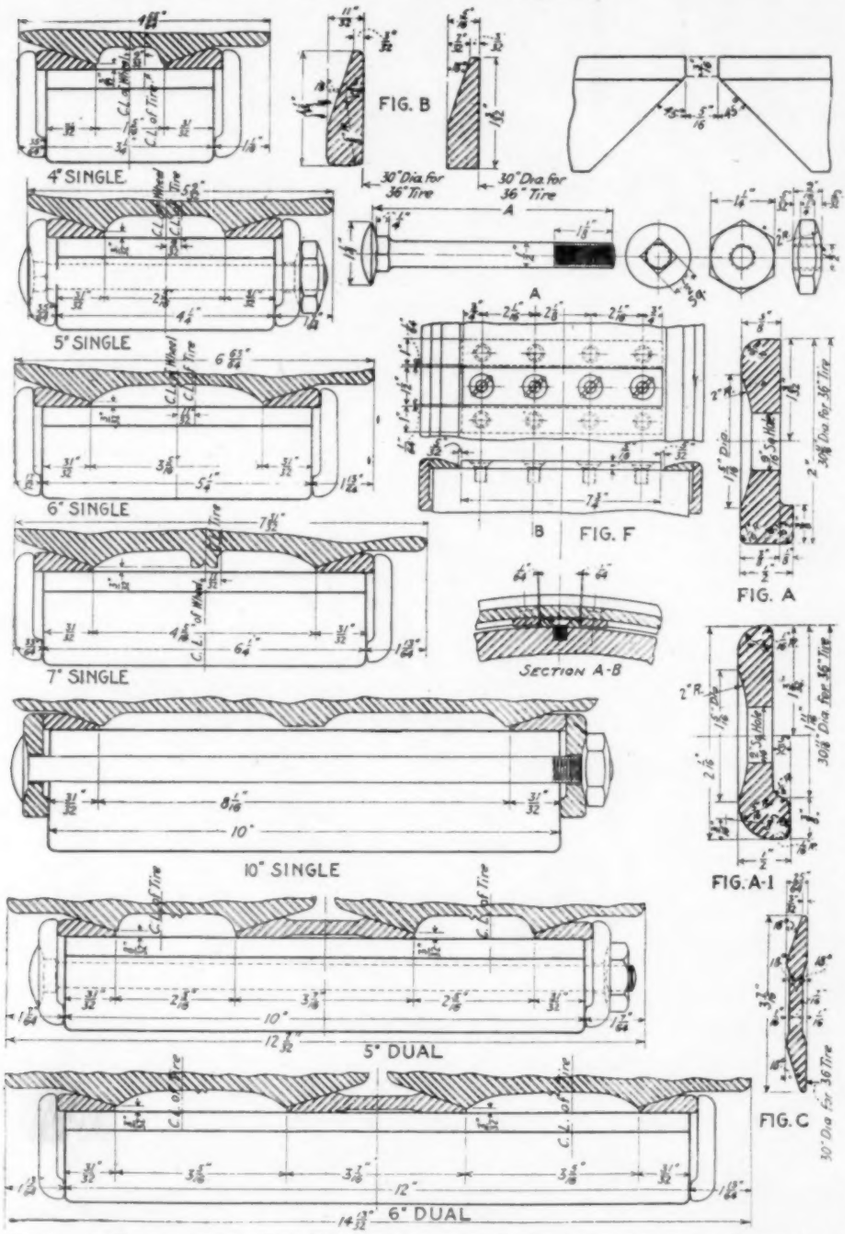
The division recommends that the standards specifications for the demountable tire and rim equipment and fastenings for the 1½- and 3-ton military trucks* shall be as follows:

1. Felloe bands and nominal tire diameters are to conform to S. A. E. standard specifications.

2. A type of tire channel shall be used that will permit of one size of wedge ring being used for both single and dual equipment, regardless of sectional size; also one standard section of center wedge ring for use between dual tires of all sectional sizes.

3. Side flanges shall be used, having the S. A. E. standard bolt circles. Flanges shall be provided with bolt holes in accordance with S. A. E. standards; the 36 in. with 12 holes and the 40 in. with 15 holes. These flanges shall be provided with bolt holes 9/16 in. square, with spherical counterboring that will permit them to be used for either inside or outside flanges. See Figs. A and A-1.

4. Side wedge rings shall be as per Fig. B, or equivalent.



PARTS FOR DEMOUNTABLE TIRE EQUIPMENT AND FASTENINGS (MILITARY TRUCKS)

5. Center wedge rings shall be as per Fig. C, or equivalent.

6. Ends of all side wedge rings shall be cut as per Fig. D, or equivalent.

7. All nuts shall be as per Fig. E, or equivalent, preferably case-hardened.

8. Bolt heads shall be made to conform to the square hole and the spherical counterboring in the side flange, Fig. A. The lengths shall be according to the following table:

Tire Section	Single	Dual
4	4⅜	9½
5	5⅜	11½
6	6⅜	13½
7	7⅜	15½

All bolts ½ by 13 U. S. S. threaded 1¼-in. minimum.

9. Contours of the underside of tire channels shall be equal to or interchange with the contours shown in Fig. G.

10. It is understood that the present tire sizes in the military truck specifications are:

36 by 4 in., single,
36 by 5 in., "
36 by 6 in., "
36 by 7 in., "
36 by 5 in., dual
36 by 6 in., "

*These trucks are now designated as class "A" and class "B" respectively.

Carrying Capacity and Inflation Pressure of Pneumatic Tires

The Division recommends that the inflation pressures given in Table I be standardized, the loads per tire and the pounds per square inch inflation be maximum values.

TABLE I—CARRYING CAPACITIES AND INFLATION PRESSURES OF PNEUMATIC TIRES

Size of Tire, In.	Max. Load (Lb. per Tire)	Max. Inflation Pressure (Lb. per Sq. In.)
3	375	45
3½	570	55
4	815	65
4½	1100	75
5	1300	80
5½	1700	85
6	2000	90

Kapok

Kapok, the fiber of the plant called Samuhu or *palo borracho* is found in great abundance in the deserts of Chaco, Santiago, or in the territory of the Misiones. This fiber is in the nature of a vegetable silk, imputrescent, impermeable and insubmergible. It is used extensively in France and England in the manufacture of capes and blankets for soldiers, rope for ships and stuffing for mattresses, pillows, etc.

It has a buoyancy thirty-five times its weight, while cork has only five. Experiment has demonstrated that kapok, after an immersion in water of one month, retains a buoyancy of twenty-six times its weight. Its buoyancy is superior to that of any other known fiber. A suit made of it would serve as a life preserver. Its elasticity and softness render it superior to hair, wool or feathers for filling pillows and mattresses.

Commercial use of kapok was made possible by the invention of a machine for separating the fiber. The inventor, a Frenchman, gave satisfactory proofs of the utility of articles made of kapok to representatives of the ministry of war and marine of both France and England. The fiber is indigenous to Argentina and is found in such quantities that it is regarded as a nuisance by landowners.

Rubber Eyes

Artificial eyes of rubber are taking the place of the old-style glass optic for wounded soldiers in Europe, says the *Popular Science Monthly*.

The rubber eyes have the advantage of being unbreakable, and as they are of pneumatic construction they maintain an elastic contact between the eyelids and the back of the orbitary cavity.

To make the new rubber product, a cast formed of liquid plaster is made of the orbitary cavity and from this is constructed an eyeball, the face being of vulcanite. The front and back parts are made of soft rubber, there being a space between the two parts which is occupied by air, making the eyes pneumatic.

President
Lester D. Gardner

THE RUBBER AGE

Editor
Herbert M. Williams

Vol. I | June 11, 1917 | No. 6

THE great handicap on the rubber industry has been the lack of a sufficient number of capable technical men in the rapidly enlarging factories of the country. Manufacturers have been compelled in a large measure to develop rubber engineers and chemists; they have in many cases been forced to adapt the service of factory men untrained in scientific ways of thought and action to the work that properly belongs to rubber chemists and engineers.

In 1909 the Municipal University of Akron added to its curriculum a Technical Course in Rubber Manufacture, and since that time it has been the only educational institution in the world to give instruction in this subject.

Leading rubber manufacturers in Akron have given this course their support and active assistance. They have even equipped the rubber laboratory in the Knight Chemical Laboratory building with complete machinery and apparatus for manufacturing and testing rubber goods.

That this work has been thorough and successful is evidenced by the fact that graduates from this course have easily secured positions superior to those usually offered to the graduates of technical colleges; in fact, at no time has the University been able to provide sufficient graduates to meet the demands that rubber manufacturers have made on it for young men with technical rubber training.

Realizing that this course contains much matter that many of the rubber manufacturers, chemists, superintendents and factory and office workers are not acquainted with, and should know, and also that there are many ambitious young men who if properly trained would soon occupy positions of trust and responsibility, The Rubber Age with the cooperation and approval of President Parker Kolbe, Ph.D., of the Municipal University of Akron, has arranged with Prof. H. E. Simmons, B.S., M.S., the head of the Department of Chemistry to write this course in a simple and easily understood manner but with scientific precision, so that it can be studied intelligently by people who have not had a technical training.

This course as scheduled by Professor Simmons on another page of this issue, will be printed in twenty-seven sections in The Rubber Age, commencing July 10, and will form the most complete up-to-date and authoritative treatise that has ever been published on the subject. It promises to be the leading hand-book on rubber manufacturing.

While the course will contain the necessary technical matter for a thorough understanding of the subject, practical methods will be given careful attention. The essentials will be taught; unnecessary matter will be omitted. It is safe to say that anybody who masters this course should possess the basic information necessary for a complete understanding of rubber, its chemistry and processes of manufacture.

The Senate Finance Committee's Wise Judgment

The rubber industry is gratified to learn that partly through the efforts of the Legislative Committee of the Rubber Association the Senate Committee on Finance has made radical changes in the war revenue bill that have removed the dangers to the industry that were threatened by the measure as passed by the House.

As the situation now stands, the Senate bill will provide for no duty on crude rubber, no tax on tires, and no tax on any manufactured rubber goods. In the place of these taxes it is proposed to place on automobile owners a tax that is to be governed by the price of the car and the number of years it has been in service.

This proposal is considered by the rubber industry to be just and equitable and it is believed it will avoid the dangers of business curtailment that might be produced if the House bill should have become a law.

While it is too early to state with any degree of certainty what changes will be made in the measure in the Senate, and also when it reaches the House, it is thought that the principal features of the bill as it leaves the Senate Committee will be incorporated into the final law.

It is a cause of gratification to the business interests of the country that the Senate Committee has acted so wisely in its treatment of the radical proposals that were incorporated in the House bill. In this matter the Upper House has retained its old time reputation for conservatism and good judgment and has acted with its traditional sanity as a check upon radical and unwise legislative enthusiasm.

Saving Daylight

Akron has met the saving daylight problem in a novel manner. Appreciating the advantages of saving daylight, the city has adopted for the summer months the Eastern standard time. Under the new order of things all factories are adhering to the former working hours, but watches and clocks are set to the Eastern instead of Central time, and everything is moving along rapidly as ever but just one hour earlier than formerly.

General approval is expressed with the change of time, which makes Akron work in conformity with Cleveland and with the Eastern cities, and it is thought by many that the city will not go back to Central time on September 30, the end of the saving daylight season.

Progress Made in Framing a Fair Revenue Bill

The Finance Committee of the Senate Is Getting the Bill Into Shape for Submitting—Uncertainty Exists as to How Automobiles and Tires Will Finally Be Treated, but Car Owners Will Probably Be Taxed

Special Washington Correspondence.

For more than two weeks the Senate Committee on Finance has been holding daily sessions in consideration of the House War Revenue bill. When it finally issues from the committee, which may be on Saturday, June 9, it will have been so changed as to be hardly recognized as the bill that had its origin in the House. The total amount of revenue to be immediately raised will be lowered by several hundred millions of dollars and the method of taxation very greatly altered.

Title six of the bill relating to the taxes to be imposed on manufactured products has been given a great deal of attention and particularly those parts relating to automobiles.

Early in the consideration of the bill it was decided to amend the bill so as to exempt manufacturers who do not make eight per cent profit from payment of the tax. Later on, Friday, May 25, all the war taxes on manufacturers included in Title six of the House bill were eliminated. In place of the five per cent on the gross sales of automobile and tires, the Senate committee decided to levy a license tax on automobile owners. After a week's consideration it was decided to put a license tax on every owner of an automobile or motor cycle.

The Proposed Automobile Tax

The motor cycle tax is to be a rate of $2.50 per year. The automobile tax will be based on retail purchase price and will range as follows: cars worth $500 or under, $7.50; $500 to $1000, $10; $1000 to $2000, $15; $2000 to $3000, $20; and over $3000, $25. A reduction of ten per cent will be made for each year's use for a period of five years.

The committee had figures before it showing that there are 3,360,000 automobiles and 260,000 motor cycles privately owned and that the income under this tax would this year amount to an aggregate of $42,000,000. Treasury experts estimate that there are 1,400,000 owners of automobiles subject to the tax of $7.50; 760,000 subject to the $10 levy; 1,219,000 in the $15 class and 231,000 in the $20 class.

A special stipulation provides that no tax shall be imposed upon cars held for sale by dealers or manufacturers, or on automobiles or motor cycles used exclusively for business purposes.

The La Follette Proposal

At this writing there is a possibility that the system as above outlined for a graduated tax will give way to a new plan suggested to the committee on Tuesday of this week by Senator Robert M. La Follette of Wisconsin. He submitted an amendment which proposed a flat one per cent tax on owners upon the retail purchase price of all automobiles, with a provision for a ten per cent reduction each year for a period of five years to allow for usage. The Wisconsin senator argued with the committee that under the graduated tax owners of the more expensive machines would escape their fair proportion of tax while the owners of the cheaper machines would have to pay more than their share.

He announced that he would oppose the graduated tax on the floor of the Senate. Senator Simmons is said to have admitted that the total automobile tax levy would be somewhat increased by the La Follette plan and from comments made by a few members of the committee it is not unlikely the La Follette substitute will be accepted by the committee and incorporated in the report.

In the early consideration of the bill it was decided to eliminate that portion which proposed to impose an increase of ten per cent on all importations. It is very probable that the statements submitted by leading manufacturers of rubber, showing the disastrous effect that such a levy would have on the rubber industry, carried large weight with the committee. In place of the import duty an excise tax will be put upon coffee, sugar and other food products from outside this country.

Hearing Before the Senate Finance Committee

F. A. Seiberling Made Pertinent Remarks in Requesting Fair Taxation—Tires Are Not Luxuries—H. Stuart Hotchkiss and Martin W. Littleton Also Made Pleas—A Graduated License Tax Is Proposed

Special Washington Correspondence.

Rubber manufacturers were given an early hearing by the Senate Committee on Finance when section 600 (A) of the War Revenue bill relating to tires and tubes was reached for consideration. Leading men of the business appeared and were united in expressing their willingness to be taxed but they were equally unanimous in opposing the House proposal of a ten per cent duty on rubber in addition to the general tax on corporations and on tires.

F. A. Seiberling, president of the Goodyear Rubber & Tire Co. of Akron, introduced the subject by saying, "We are very glad to be taxed for our full share, and I think a little more." He then explained the scope and character of the industry by recounting the fact that "We have 300 manufacturers of rubber in the United States, in round numbers. The volume of business in the year 1916 was approximately $600,000,000, of which in the past year $250,000,000 has been in tires.

"The bill you have before you," he continued, "proposes to select out of the volume which the country is doing, tires alone, on which you attach an excise tax of five per cent, and you are attaching an import duty on crude rubber of 10 per cent, the purpose as I understand it, being to raise about $25,000,000 out of the rubber industry, which your present figures would give you. We feel that you should relieve us entirely of the import tax on crude rubber, which should be done, because it will check the business, and attach a uniform 5 per cent on our products, and if you do so, you will get thereby $30,000,000 of revenue instead of $25,000,000. We are perfectly willing to pay it. We feel that the government must have the amount of money it is asking for, but it ought to levy that duty fairly over the entire industry in the United States."

Tires Are Not Luxuries

Referring more in detail to the proposed import duty of ten per cent on crude rubber, Mr. Seiberling said, "Let me bring up one phase of it here. In Akron, we are making largely rubber tires and I assume in drafting this bill they were trying to get at the luxuries. Ten years ago that might have been so, but it is not so now, and tires are the subject of great economic utility. Truck tires is one of the great products we make. No one can class the truck as a luxury. It is developing the commercial field and is making great advances.

"We feel that this crude tax should not be imposed at all. The luxuries, such as toy baloons and things of that kind are not being taxed at all. You are putting all the tax on rubber tires. There is not a pound of rubber grown in this country. This 10 per cent is going to operate against that. We want you to help us bank up stocks to protect the American public and whatever duty you put on rubber put it on the finished product. We are ready to bear our whole share."

The Crude Rubber Situation Is Serious

H. Stuart Hotchkiss, chairman of the Rubber Committee of the Council of National Defense followed Mr. Seiberling and emphasized the fact that the crude rubber situation in the United States is a very serious one. He said that a careful survey of the field had been made and that it was shown that at the present time there is exactly thirty days' supply of rubber at the mills; there is seventeen days' supply of rubber in the United States in transit and twenty-nine days' supply which has been permitted under the English scheme of issuing permits and which is either held at ports of origin or is afloat.

He stated that in normal times the industry has on hand three months' supply at the mills. He said he was very apprehensive that an import tax on crude rubber would tend to curtail importations at a time when those importations were absolutely essential as a matter of national insurance.

Martin W. Littleton, former congressman from New York, made an extended statement in which he suggested various amendments to accomplish revenue returns without resorting to the import duty.

Graduated License Tax Proposed

At a session given over to the consideration of war customs duties Sol Wexler of New York discussed in detail the proposed tax on manufacturers and referring to the fact that in the House bill no tax had been put on automobiles now in use said, "I have been told that this omission was made because it was believed that such a tax would be unpopular. I do not concur in this view and I believe that every automobile owner would be willing to pay a fair and reasonable tax upon his automobile." In his statement Mr. Wexler proposed the graduated license tax on privately owned automobiles and which later on was approved in principle, though with some variations in figures, as is described in another part of this correspondence.

News Items of the American Rubber Trade

Boston Woven Hose Buys Liberty Bonds—Kelly Resigns from the Republic —F. C. Van Dyk Is Dead—Col. Colt Goes on Fishing Trip—Hood Employes Equip Ambulance

Buys $50,000 Worth of Liberty Bonds

In order to be of every possible assistance to those of its employes who desire to purchase Liberty Bonds, the directors of the Boston Woven Hose & Rubber Co., Boston, Mass., have subscribed to the amount of $50,000 and have notified all employes that they may take out as many as they choose and pay for them at the rate of $1.00 per week for each $50.00 bond. Without charging any extra interest, the company, therefore, makes it possible for its employes to obtain a share of the loan at a reasonable rate of payment, and although the subscription list has only been open for a few days, the amount already taken up is such as to assure the success of the plan as well as to attest the appreciation of the company's assistance along these lines.

Kelly Resigns from Republic

Formal announcement has been made that John H. Kelly, general sales manager and vice-president of the Republic Rubber Co., has tendered his resignation to become vice-president and general manager of the Hewitt Rubber Co. of Buffalo, N. Y., manufacturer of mechanical rubber goods. Mr. Kelly has been with the Republic Rubber Co. for a number of years, and severs his connection with it because he has acquired substantial interest in the Hewitt company, of which he will take over the general management of affairs. The work of Mr. Kelly at the Republic Co. will be carried on for the present by M. E. Murray, assistant sales manager, Charles W. Hardin, manager of the New York branch of the company and Benjamin C. Swinehart, manager of the truck tire sales department.

Simpson to Go to Kansas City

George O. Simpson, who for ten years has been connected with The B. F. Goodrich Co.'s branch in Philadelphia, Pa., has been transfered to Kansas City as branch manager for that territory.

Mr. Simpson went to Philadelphia from Akron about ten years ago, having been previously connected with the Goodrich factory. For the last five years he has been branch manager.

Mr. Simpson will be succeeded by E. H. Fitch, who for many years has been manager of the Diamond Rubber Co. of Philadelphia, and for the last few years manager of the Diamond division.

F. C. Van Dyk Dead

Francis Cornelis Van Dyk, president of the Rutherford Rubber Co., maker of Sterling tires, died May 21. He was 79 years old and was born at San Juan, Porto Rico. Up to the time of his death he was president of eight land companies and was interested in silk manufacturing. He was president of the South Scranton Throwing Co., vice-president and director of the North Jersey Title Insurance Co., and vice-president and director of Second National Bank of Paterson for many years.

U. S. Wire Tire Co. Will Build in Pittsburgh

The United States Wire Tire Co. will build its plant in Pittsburgh, Pa. This company manufactures a solid tire of steel spring construction which is guaranteed for 12,000 miles.

Canadian Drawback on Fabrics

Regulations issued under an "order in council" of February 6, 1917, authorize a drawback of 99 per cent of the customs duties on imported cotton fabrics which are used in the manufacture in Canada of rubber belting, rubber tires, and rubber tubes.

The drawback will be allowed only when the duty has been paid not more than three years before the manufacture of the goods and cannot be claimed for a quantity of cotton fabric in excess of the quantity of similar cotton fabric used in the manufacture of the rubber belting, tires, and tubes made by the claimant for drawback and exported during the period covered by the claim subsequent to January 1, 1917. Satisfactory proof must be furnished as to the manufacture and exportation of the goods on which drawback is claimed.

Colonel Colt on Fishing Trip

Colonel Samuel P. Colt, President of the U. S. Rubber Co. of New York, has gone with a party of friends for a three weeks' fishing trip to his camp in Maine. The party is expected back about June 23. The party includes United States Senator Le Baron B. Colt, Dr. Calvin S. May, Nathaniel Meyers, F. N. Constantinibi, Walter S. Ballou, Mr. and Mrs. Andrew Weeks Anthony, Colonel and Mrs. Harold J. Gross, Mr. and Mrs. E. A. Barrows, Mrs. Florence Beresford, Ernest Hopkinson, Countess Eleanor Moroni, Mrs. Imogene S. Waldron, Mrs. John W. Bicknell, H. Stuart Hotchkiss, and A. W. Bahr.

Good-Wear Changes Name to Long-Wear

The Good-Wear Rubber Co., Elyria, Ohio, has changed its name to The Long-Wear Rubber Co. This company has bought all the machinery and equipment for its factory and considerable portion of it has arrived. They claim to have five months' supply of raw material, and they expect to start operations in July.

Boston Woven Hose Entertains Customers

On Thursday evening, May 24, the Boston Woven Hose & Rubber Company entertained eighty-one of its New York customers at dinner at the Machinery Club, 50 Church Street, New York City. After the tables were cleared a motion picture film, entitled the "Story of Rubber, What it is and What it Does" was shown in which the industry was illustrated from the gathering of the crude rubber in the Brazilian forests and East Indian plantations through the various manufacturing processes taken at the company's works at East Cambridge and finally depicting the use of the various products. The film was accompanied by a lecture delivered by R. E. Conder, advertising manager of the company, who described in detail the various scenes illustrated in the film.

George E. Hall, vice-president and general manager presided and introduced R. J. Owens, manager of the New York office and J. W. Fellows, factory manager, both of whom made brief addresses.

The evening was an enjoyable one, and especially instructive and entertaining to those customers who, although having had several years business connection with the company, had never been able to visit the large and up-to-date plant of the company at East Cambridge, Mass.

On the following evening, at the Technology Club, Mr. Couder showed the films and gave an interesting talk to many members and rubber men.

Hood Employes Equip Ambulance

When Hospital Unit No. 7, composed of volunteers from the Boston City Hospital, is called into service, it will take with it an ambulance equipped with surgical appliances much superior to that which the Government ordinarily uses on its ambulances. Recently Dr. E. H. Nichols, who is in charge of the unit, received word that $1,200 had been contributed by employes of the Hood Rubber Co. in Watertown, Mass., for the purpose of properly fitting this particular unit's ambulance.

Philadelphia Rubber Plans Addition

The Philadelphia Rubber Works, Philadelphia, Pa., has filed plans for an addition to its machine shop to cost about $9,000.

Financial News of Interest

Rubber Goods Co. Reduces Capital—Dreadnaught Has Voted to Increase Capital and Expand—U. S. Rubber Co. Has Subscribed $1,000,000 to Liberty Loan

Rubber Goods Co. Reduces Capital

The Rubber Goods Manufacturing Co., a New Jersey corporation, has decreased its capital from $50,000,000 to $100,000. The last annual report showed that the company had issued $27,293,100 capital and paid a tax of $5,114. Under the reduction only $100 tax will be paid. The United States Rubber Co. is the largest stockholder. Elisha S. Williams of New York is president and Samuel Norris of New York secretary.

Auto Tire Corp. Increases Capital

The Auto Tire Corp. of Greenfield, Ind., has increased its capital from $25,000 to $250,000 and has changed its place of business to Greenfield from Indianapolis, Ind.

U. S. Rubber Subscribes

The United States Rubber Co. has announced a $1,000,000 subscription to the Liberty Loan and arrangements to enable employes to purchase.

Dreadnaught to Expand

Plans for providing additional facilities for manufacturing the products of the Dreadnaught Tire & Rubber Co., Baltimore, Md., have been consummated by stockholders of the corporation, who have voted to increase the capital stock of the concern from $700,000 to $1,400,000. Of this amount 25,000 shares will be prior lien stock, 30,000 shares of preferred stock and 85,000 shares of common stock, with a par value of $10 for each class of stock.

Pennsylvania Rubber Dividends

Regular quarterly dividends of the Pennsylvania Rubber Co., Jeanette, Pa., are declared payable on June 30 to stockholders of record June 15. Dividends are for 1¾ per cent on the preferred stock and for 1½ per cent on the common.

Keystone Shows Increase

Net earnings for April as given out by the Keystone Tire & Rubber Co., New York City, amount to about $75,000.

Important Trade Happenings

G. E. Norwood Becomes Republic President—The Rubber Association Outing to Be Omitted—Rubber Shipments via Halifax and to England—Ralph M. Loewenthal Heads New Company

G. E. Norwood Becomes Republic President

Guy E. Norwood, well known as secretary and assistant treasurer of The B. F. Goodrich Co., Akron, Ohio, has been elected as president of the Republic Rubber Co., Youngstown, Ohio. Mr. Norwood

Photo by Goddard Studio

GUY E. NORWOOD

has already assumed the duties of his new office. In a statement Thomas L. Robinson, chairman of the board of directors of the Republic company, says:

Our business has grown so large that we have felt the desirability of adding to and strengthening our personnel, and we deem ourselves particularly fortunate in associating Mr. Norwood with our company. He has had an experience of many years in the rubber business with the Diamond and Goodrich companies, both in factory and executive branches. He has resigned his position as secretary of The B. F. Goodrich Co. to become president of The Republic Rubber Company.

Mr. Norwood has acquired a large financial interest in our company, and becomes in every sense identified with us as our executive head. In his capacity as president, he will have special oversight of production and sales.

Mr. Robinson will continue as chairman of the board of directors and will have essentially the same relations to the company and its organization as heretofore, having to do particularly with the financial and corporate phases of the business.

The Rubber Association Outing

As proposed by the Outing Committee and reported in the last issue of THE RUBBER AGE, the Executive Committee of the Rubber Association of America has voted not to hold the annual midsummer outing this season, and instead to create a fund with the money which would have thus been expended to be used in war relief work.

The annual banquet of the Association in 1915 was omitted in order that the Association could give assistance to war relief work, and the entire membership approved most heartily of this action and contributed generously toward this fund. Inasmuch as our own country is now at war, it is deemed even more necessary that The Rubber Association should take part in war relief measures.

The invitation to contribute will be extended to all rubber manufacturers and it is hoped that an amount may be raised that will be representative of the rubber industry, which is now one of the greatest in our country.

Checks should be made payable to The Rubber Association of America, Inc., and sent to the offices of the Association, 17 Battery place, New York City.

Shipments via Halifax and to England

The Rubber Association of America has addressed a circular letter to American rubber manufacturers, directing their attention to a cablegram received from the London representative of the United States Rubber Export Co., Limited. This cablegram gives details of the arrangements decided upon by the British Government regarding restrictions of importation of manufactured rubber goods into England and reads in part as follows:

"Interview with Board of Trade confirms that shipments for Scandinavian countries will go via Halifax, avoiding England. Shipments for Spain by direct steamer will be permitted, the exact method of control to be shortly determined on. All goods intended for England leaving factories or ports on through bills of lading prior to May 10 will be admitted without license. Any shipments which may be near but not prior to that date will be admitted by license. Administrative interpretation with the respect to these cases will be reasonable. All products needed for war will be licensed for admission. Government considering rationing tires on proportion last year's imports. Mail all inland railroad bills of lading prior to May 10. Also any shipments between May 10 and June 1. Expect to get all of these passed."

Further information will doubtless soon be available relative to shipments to Spain and the Rubber Association will transmit them to the trade as soon as they are received.

R. M. Loewenthal Heads New Company

A new scrap rubber company has been formed under the name of R. M. Loewenthal Co., Inc., with headquarters at 51 East 42nd street, New York, and warehouses at Buffalo, N. Y. The president of the new company is Ralph M. Loewenthal, who for many years was one of

RALPH M. LOEWENTHAL

the executives and directors of the Loewenthal Co., in which he has disposed of all his holdings.

Ralph M. Loewenthal is the son of B. Loewenthal, who fifty years ago started what subsequently developed into the present Loewenthal Co. The new company plans to deal exclusively in scrap auto tires and tire scrap.

Activities in the Rubber Metropolis

Firestone Advances Sales Heads—Goodyear Earnings—H. S. Firestone to Serve in Ohio's War Cabinet—George L. Brown Joins Goodrich—Will Vote on Time

Firestone Advances Sales Heads

A. G. Partridge, general sales manager of The Firestone Tire & Rubber Co., Akron, Ohio, has promoted E. W. BeSaw, formerly western district manager to the newly created post of assistant general sales manager. Following BeSaw in the western terrieory, H. A. Grubb is raised from the Texas managership. Succeeding Frank C. Blanchard, who died in February, C. H. Sorrick is made manufacturers' sales manager from the post of manager of pneumatic sales, and J. D. Hess, manager of the Cleveland Firestone branch, takes Sorrick's former place in the management of pneumatic sales

Goodyear Earnings

Net earnings of the Goodyear Tire & Rubber Co. for the first half of the fiscal year ending April 30 are reported to total $5,379,112, the largest for such a period in the history of the company. The total sales were $43,203,389. It is estimated the last half of the year will be much heavier and that the net earnings for the year will amount to $12,000,000. The unappropriated surplus was $6,119,131. Assets of the company are now said to be $75,932,434.

H. S. Firestone in Ohio's War Cabinet

Governor Cox of Ohio recently appointed a "war cabinet" of twenty-seven men, including H. S. Firseone, president of the Firestone Tire & Rubber Co., Akron, Ohio. Governor Cox said that the task of placing Ohio on a real wartime basis would fall on these men, and its purpose is to exercise every possible precaution against labor troubles and to cooperate with Ohio agricultural interests in the fight for more food.

George L. Brown Joins Goodrich

George L. Brown has become identified with the new trade extension and research department of the B. F. Goodrich Co. at Akron, Ohio. Mr. Brown has devoted ten years of his life while traveling in the United States as a representative of well-known sporting goods lines.

Will Vote on Time

Citizens of Akron will be given a chance to vote for either eastern or central standard time June 26, when a special referendum election has been called. The election is the result of filing of petitions containing 3,427 names with the City Auditor.

The Activities in the Tire Trade

The Polack Tire Co. Removes to More Attractive Offices—Ward Is Made District Manager for the United States Tire Co.—Durst Is Manufacturing Tubes—Other News of Interest—What the Dealers Are Doing—New Goods

Polack Tire Co. Removes Offices

The Polack Tyre & Rubber Co. has moved its general and sales offices to new quarters on the second floor of the Motor Mart, 1876 Broadway, New York. These quarters are much more commodious than the old, a good frontage being had on both Broadway and 62nd Street. A rapidly expanding business with both truck users and truck manufacturers has made this expansion necessary.

Ward Made District Manager

Joseph Ward has been made district manager of the United States Tire Co., with headquarters at Indianapolis, Ind. He was formerly connected with the Waverly Co., served as assistant sales manager of the American Motors Co., and in 1915 became a special factory representative and later local branch manager of the United States Tire Co. He will now have supervision over three branches, Terre Haute, Fort Wayne, and Indianapolis.

Durst Is Manufacturing Tubes

The Durst Mfg. Co., 105 Chambers Street, New York City, which has been manufacturing rubber and metal specialties for years, has entered the automobile field. It is now manufacturing inner tubes and pedal rubbers.

Blair with U. S. Tire Again

Hugh Blair, who was at one time associated with the New Orleans Branch of the U. S. Tire Co., has rejoined the organization. For the past year or so he has been in Atlanta, Ga.

Kennedy Becomes Special Representative

L. W. Kennedy has become special truck tire representative of the United States Tire Co. in the Southern District. His headquarters are in Atlanta.

U. S. Tire Co. Has New Branch

The U. S. Tire Co. has opened a branch in Fort Wayne, Ind., to handle the business of northern Indiana.

AMONG THE DEALERS

DONOVAN HARNESS CO., Lowell, Mass., has secured the agency for Standard tires.

THE WAYSIDE TIRE & VULCANIZING SHOP, Chicago, Ill., has been equipped with Prest-O-Lite service system for batteries.

THE AUTO SALVAGE CO., Decatur, Ill., headed by H. E. Tandy, has opened business at 252 East Main Street. The company will do an automobile wrecking business and will also sell tires.

THE TIRES RETREAD & REPAIR CO., Des Moines, Iowa, has been established by A. C. Gregg and R. L. Martin. The company will install a vulcanizing plant in the rear of the building, which is located at 908 Locust Street. A full line of accessories will be carried, specializing in Michelin tires.

THE FLYNN-STROH TIRE CO., composed of John R. Stroh and W. T. Flynn, has opened a salesroom at 3318 Lindell Avenue, St. Louis, Mo. Portage tires will be handled.

Brunner Tire Inflator

Many garages have no space for the installation of a large tank system for supplying air to customers' tires and are thus at a disadvantage with their rivals who can furnish "free air."

The Brunner Manufacturing Co., Utica, N. Y., which makes an extensive line of compressors for all purposes, is now marketing a compact and handy outfit designed for inflating tires direct, without using any storage tank.

This outfit is mounted on a three-wheeled truck with a handle of convenient height, bearing hooks to hold electric cord and air hose when not in use. The mechanism itself is the standard two-cylinder air-cooled compressor made by the Brunner Company, using a ¼-hp. motor in either direct or alternating current type. Actual tests are said to show that a tire 35 x 4½ in. can be inflated in four minutes. The small cast-iron tank, to the right of the pump, is provided with an ingenious interior arrangement to precipitate moisture.

The equipment includes 20 ft. of electric cord with plug, and 20 ft. of 5-ply rubber and fabric air hose, with tire connection and pressure gauge.

Mattson Slip-On Pedal Pad

Metal clutch and brake pedals with which automobiles are usually equipped have serious drawbacks. They are hard on the feet and shoes, and because they cannot well be made of very hard metal the corrugations soon wear smooth. When pedals are not sufficiently rough there is a constant danger of slipping.

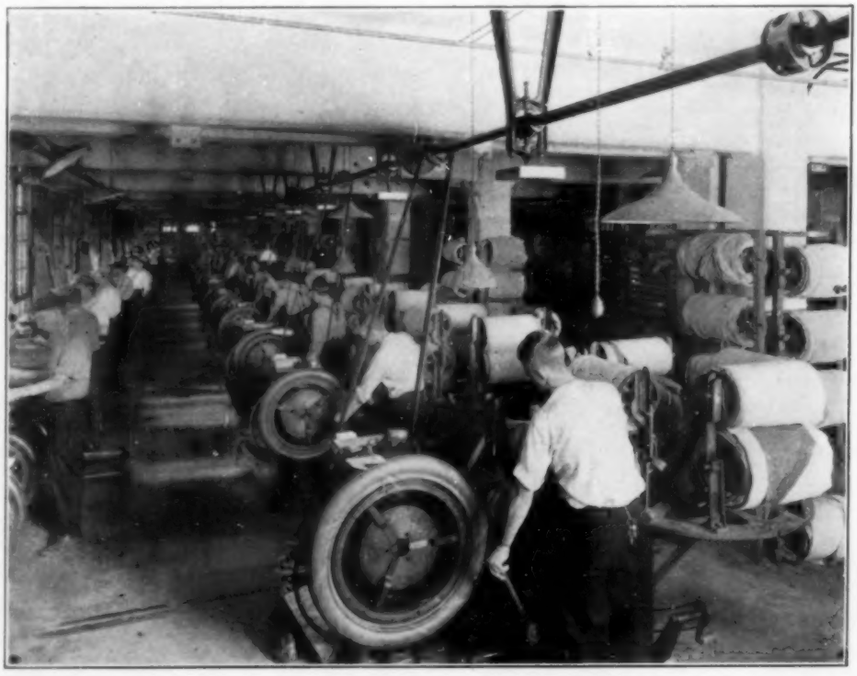
The Mattson Rubber Co., Lodi, Bergen County, N. J., is manufacturing a rubber pad, made to slip over the face of brake and clutch pedals. The top of this pad is heavy, and is deeply indented so as to provide a durable surface that is soft and springy, and offers a firm grip.

"It's-It" Vulcanizer

The man who drives his own car and has punctures to repair appreciates devices that facilitate his work. "It's-It" vulcanizer is manufactured by the Premier Electric Co., 4022 Ravenswood Avenue, Chicago, Ill., and is specially designed for first aid work in vulcanizing damaged tubes on the road. It operates by electricity from the car's storage battery, consuming according to its makers, only about as much current as a single headlight. It applies heat evenly at all times and is rapidly adjusted.

For Ford owners it is said that running the motor at ordinary speed will furnish sufficient current to work the device well. The outfit sells for $1.50.

BUILDING TIRES IN ONE OF THE BIG AKRON FACTORIES



A VIEW IN ONE OF THE TIRE-BUILDING DEPARTMENTS IN THE FACTORY OF THE FIRESTONE TIRE & RUBBER CO., AKRON, O.

American Rubber Patents

ISSUED MAY 22, 1917

1,226,703—To Karl H. Schmidt, Chicago, Ill. Pneumatic Tire.

1,226,862—To Charles L. Crow, Alexander City, Ala. Anti-slipping Armored Pneumatic Tire.

1,226,874—To Harry S. Folger and Torey Ross, Chicago, Ill. Hand Stamp.

1,266,880—To John S. Harris, St. Louis, Mo. Rim and Tire for Wheels.

1 266,899—To Lemuel McKinnon, Salt Lake City, Utah. Tire.

1,266,909—To Benjamin H. Pratt, Milwaukee, Wis., assignor to The Federal Rubber Co., Cudahy, Wis., a corporation of M ssachusetts. Blow-out Patch for Pneumatic Tires.

1,227,427—To Hans E. Grabau, Long Island City, and A. Charles Schwartz, New York, N. Y.; said Grabau assignor to said Schwartz. Method of Making Tire Casings.

1,227,493—To Arthur L. Runyan, Waterloo, Iowa, assignor to Runyan Cushion Wheel Co., Omaha, Neb., a corporation. Resilient Heel for Boots or Shoes.

1,227,494—To Arthur L. Runyan, Omaha, Neb., assignor to Runyan Cushion Wheel Co., Omaha, Neb., a corporation. Resilient Wheel.

1,227,495—To Arthur L. Runyan, Omaha, Neb., assignor to Runyan Cushion Wheel Co., Omaha, Neb., a corporation. Resilient Tire.

1,228,106—To Fred J. Giduz, Roxbury, Mass. Mold-Clamping Device.

1,228,139—To James Calvin Rogers, Birmingham, Ala. Garter.

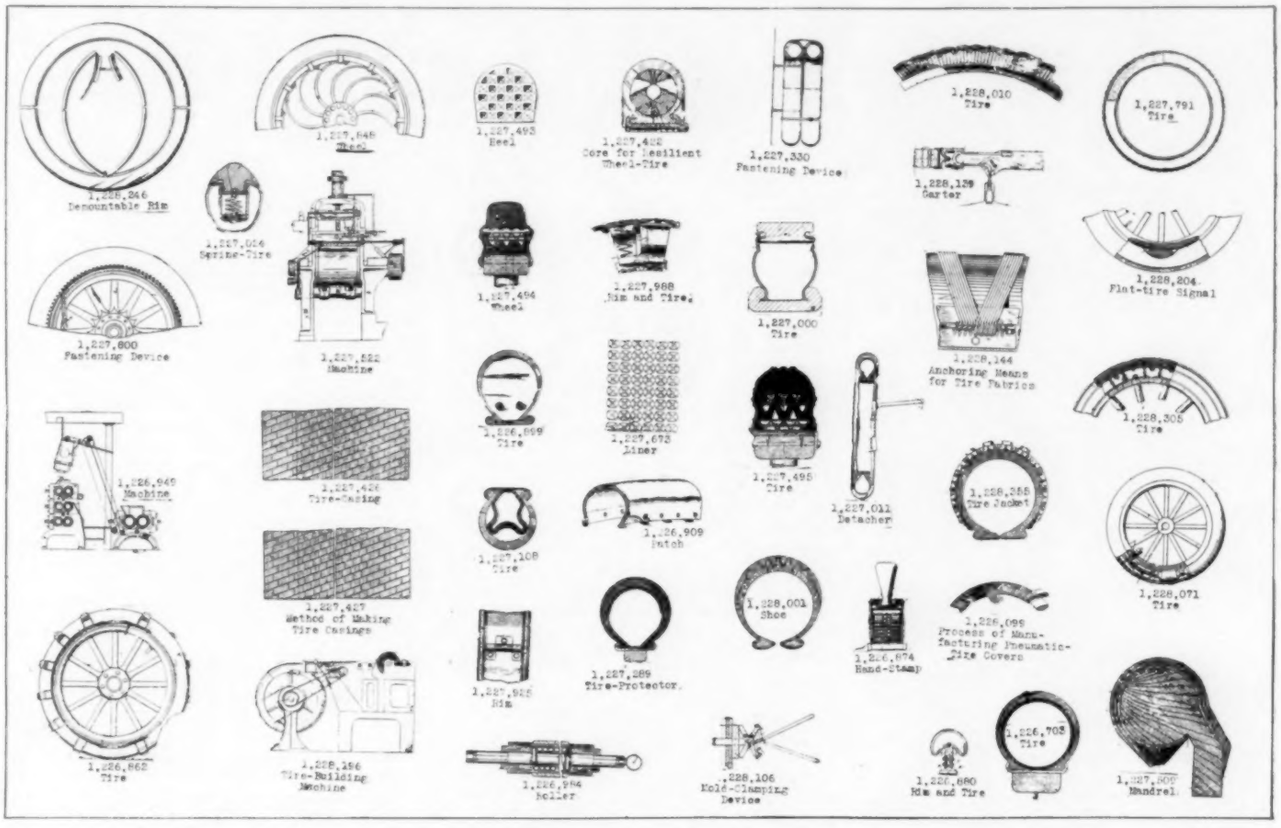
1,228,144—To Benjamin L. Stowe, Jersey City, N. J., assignor to Morgan & Wright, a corporation of Michigan. Anchoring Means for Tire Fabrics.

1,228,196—To George F. Fisher, Roselle, N. J., assignor to The Hartford Rubber Works Co., a corporation of Connecticut. Tire-Building Machine.

1,228,204—To David D. Getman, Minneapolis, Minn., assignor of one-third to Joseph P. Sternhagen, Glasgow, Mont. Flat-Tire Signal.

1 228,246—To James D. Reilly, Providence, R. I. Demountable Rim.

1,228,305—To Charles F. Erickson, Brooklyn, N. Y. Resilient Tire.



1,266,941—To Zotique Beaudry, Lynn, Mass. Machine for Burnishing the Edges of the Soles of Boots and Shoes.

1,266,949—To Myron H. Clark, Hastings-on-Hudson, N. Y., assignor to The Goodyear's Metallic Rubber Shoe Company, a corporation of Connecticut. Machine for Treating Sheet-Rubber.

1,226,984—To Jabez Muskett, Pendleton, Manchester, England. Rubber-covered Roller.

1,227,000—To William E. Pugh, Seattle, Wash. Tire.

1,227,011—To Thomas R. Snyder, Barberton, Ohio, assignor of one-fourth to William H. Werley, Barberton, Ohio. Tire-rim Detacher.

1,227,024—To Matthew A. Walker and Charles C. Moore, Elephant Butte, N. Mex. Rubber Spring-Tire.

1,227,042—To Ellen M. Crumrine, Lima, Ohio. Hose Supporter.

1,227,108—To Hamilton Clayton Boggs, Decatur, Ala. Inner Tube for Pneumatic Tires.

1,227,199—To Henry Augustus Rodiguez, Wood Brook, Port of Spain, Trinidad, British West Indies. Garter.

1,227,289—To Bertha Mermelstein, New York, N. Y. Tire Protector.

1,227,330—To George Skarie, Albert Lea, Minn. Automobile-Tire Fastening Device.

1,227,348—To Alfred Edmund Wale, Coleshill, England. Tire.

1,227,422—To George E. Gilmore, Cleveland, and Frederick V. Roesel, Akron, Ohio. Core for Resilient Wheel-Tires.

1,227,426—To Hans E. Grabau, Long Island City, and A. Charles Schwartz, New York, N. Y.; said Grabau assignor to Schwartz. Tire-Casing.

1,227,502—To Andrew Thoma, Cambridge, Mass., assignor to North American Chemical Co., New York, N. Y., a corporation of Maine. Filling for Shoes.

1,227,509—To Harry B. Wallace, St. Louis, Mo. Mandrel.

1,227,522—To Fernley H. Banbury, Ansonia, Conn., assignor to Birmingham Iron Foundry, Derby, Conn., a corporation. Machine for Treating Rubber and Other Heavy Plastic Material.

ISSUED MAY 29, 1917

1,227,673—To Seymour A. Rouse, Chicago, Ill. Armored Liner for Pneumatic Tires.

1,227,791—To Josef Huebner Milwaukee, Wis., assignor to Pan-American Rubber Co., Milwaukee, Wis., a corporation of Wisconsin. Tire for Vehicles and Method Making Same.

1,227,800—To Perry E. Kent, New York, N. Y. Fastening Device for Overshoes for Tires.

1,227,848—To Ralph F. Spencer, Osceola, Ill. Resilient Wheel.

1,227,925—To Elmer Oliver, Daytona, Fla. Demountable Rim.

1,227,988—To Richard Wunning, New York, N. Y. Wheel Rim and Tire.

1 228,001—To Demetrios J. Demas, Pittsburgh, Pa. Tire Casing or Shoe.

1,228,010—To Adrian A. Firestone, Cleveland, Ohio. Spring-Tire for Vehicles.

1,228,068—To Harriet Sheldon, Marblecliff, Ohio. Garter.

1,228,071—To Joseph F. Sincage, Florence, Mass. Tire.

1,228,099—To James Walter Henry Dew, London, England. Process of Manufacturing Pneumatic-Tire Covers.

1,228,355—To Andrew S. Anderson, Oakland, Cal., assignor of one-half to Roe L Smith, Oakland, Cal. Vehicle-Tire Jacket.

Recent Incorporations

Pacific Tire & Rubber Co., New York City. Manufacturing tires; capital, $2,000. Incorporators: Sydney Bernheim, C. A. Weldon, H. H. Jacobson.

The Charles Valve Remover Co., Middlefield, Ohio. To manufacture an automobile repair tool; capital, $1,000. Incorporators: Chas. Wilkerson, E. H. Brigden.

The Double Action Pump Co., Lynchburg, Va.; capital, $50,000. A. T. Henderson, secretary.

Lambert Multiplus Co., Portland, Ore.; capital, $5,000. To deal in all kinds of tires. H. M. Lambert, Arthur Cotzhausen and E. R. Anderson.

The Giant Tire & Sales Co., Rochester, N. Y. To manufacture tires; capital, $10,000. Directors: J. M. Jonson, L. Z. Johnson, A. L. Dutton, E. F. Gamrod and J. A. Huber.

Dunlop Rubber Tire Co., New York City; capital $1,000; to manufacture motors, cars, carriages, tires, etc. Incorporators: O. Branwarth, L. A. Branwarth and Albert Bracht.

Whinihan Bros. & Co., Buffalo, N. Y.; capital, $5,000; to sell and repair automobile tires.

Hurd Tire Corporation, Dover, Del.; capital, $150,000; to manufacture, buy and sell and deal in tires, etc.

Security Tube Co., South Bend, Ind.; capital, $150,000; to manufacture tires and tubes.

Market for Manufactured Rubber Goods

Optimism as to the general business of the country seems to have displaced the rather pessimistic views of a few weeks ago, and "business as usual" or rather "business better than usual" has become a more potent slogan than the "economy campaign."

TIRES

The fine weather of the last few days has had a highly stimulating effect on retail sales of automobile tires, but there is still the feeling that the public is curtailing its purchases in spite of the fact that most concerns are doing a greater volume of business than they were at this time last season. A general increase in tire prices appears to be imminent. Many dealers are awaiting it at any moment and expect it to amount in some instances to 20 per cent above present list prices.

MECHANICAL GOODS

The rubber mechanical goods trade is still busy on orders in hand, but reports show few new orders and attribute this slack in the sales departments to the tendency to economize and curtail expenses that has resulted from the "economy campaign."

No large Government contracts are reported.

In the fire hose trade the feature was the purchase of 60,000 feet of fire hose by the City of New York at prices ranging from 82 to 89 cents a foot. This purchase was split up among the Hewitt Rubber Co., Buffalo, N. Y., and the Eureka Fire Hose Mfg. Co., New York, the Manhattan Rubber Mfg. Co., Passaic, N. J., and the Empire Rubber & Tire Co., Trenton, N. J. The prices at which this purchase was made are considered very low in view of the increasing cost of fabrics and everything that goes into the making of fire hose.

SOLES AND HEELS

Rubber manufacturers making soling, soles and heels, are still very busy and the indications are that they will continue to be so for many months to come.

The orders the Government has placed for leather footwear are without precedent in the history of the boot and shoe industry. Never before have such large orders been placed and to fill them will require such great quantities of leather that will make this commodity extremely scarce for civilian uses. The result will of course be a still heavier draft than the one that is now being made on the substitutes for leather soles and heels such as are produced by the rubber industry.

FOOTWEAR

The amount of energy and activity that is being displayed by the rubber footwear industry in its efforts to keep up with the demands made upon it continues to be the feature of the trade. Lack of sufficient numbers of skilled labor is still the principal difficulty. Large Government orders are about to be placed. This is evidenced by the following reports from Washington.

SHOES AND RUBBER BOOTS FOR NAVY

The Bureau of Supplies and Accounts of the Navy Department invited proposals for the supply of gymnasium shoes and rubber boots as follows:

273,400 pairs of gymnasium shoes, in accordance with "Specifications 3782," assorted as follows: 16,300 pairs, size 5; 21,300 pairs, size 6; 39,600 pairs, size 7; 69,600 pairs, size 8; 24,700 pairs, size 9; 14,300 pairs, size 10; 6,600 pairs, size 11, and 21,000 pairs size regulars.

81,296 pairs of rubber boots, in accordance with "Specifications 55B3a," assorted as follows: 800 pairs, size 5; 6,100 pairs, size 6; 19,000 pairs, size 7; 24,000 pairs, size 8; 15,100 pairs, size 9; 6,300 pairs, size 10; 3,300 pairs, size 11, and 696 pairs, size 12.

Deliveries to be made at the provisions and clothing depot, navy yard, Brooklyn, N. Y., within eight months after date of contract or bureau order.

Bidders were required to state the names and addresses of the manufacturers and the exact location of the manufactured stock.

Proposals for the supply of the gymnasium shoes and rubber boots were received as follows:

273,400 pairs of gymnasium shoes, in accordance with specifications, John Wanamaker, New York, $0.97 per pair, and United States Rubber Co., New York, $1.03 per pair. Additional bids of $0.93 and $0.80 per pair, as per samples, were received; 81,296 pairs of rubber boots, in accordance with specifications, Hood Rubber Company, Watertown, Mass., sample No. 1, $178,451.52, sample No. 2, $165,651.20. Mishawaka Woolen Manufacturing Co., Mishawaka, Indiana, 9,410 pairs only, at $26,217 as per sample; The Southern Sales Co., Akron, Ohio, 24,000 pairs only at $56,400; United States Rubber Co., New York, $183,722.25 for entire amount, and additional bids in accordance with amended specifications $2.37 and $2.24 per pair, and as per sample No. 1 $2.55, sample No. 2 $2.24, and sample No. 3 $2.44 per pair.

Among other bids recently opened by the United States Government, were proposals from J. M. Herman and the Excelsior Shoe Co., to furnish 40,000 pairs of gymnasium shoes at $2.35 and $4.13 a pair respectively.

DRUGGISTS' SUNDRIES

The "on" season for the druggists' sundries trade has not yet opened, but the indications are that it will be the most lively one the industry has experienced. Regular trade will be very large and no doubt will be immensely augmented by government orders for all kinds of rubber sundries and surgical rubber goods. However, unless conscription further aggravates the shortage of labor, druggists' sundries manufacturers do not expect impossible difficulties in supplying all demands.

The Fabric Market

June 8, 1917.

The raw cotton market continues to be very strong, and disregarding minor discrepancies, the high level of last November has again been attained. The causes have been the unsatisfactory crop reports that have been coming in, with indications of an even smaller acreage than seemed probable at the beginning of May, and the big Government contracts already made and to be made, insuring full American consumption for a long time, regardless of what the European situation may be. There is much optimism as to general business.

Opposition to further advances in raw cotton prices is asserting itself with increased confidence, and the price level has released considerable actual cotton at Southern points, the buyers of which have hedged by selling here or in New Orleans. The market, since our last report, has at times appeared to be overbought, and it has been the expressed opinion of certain authorities that only continued speculative buying could sustain it. Any decline, however, it is thought, would be but temporary, for there is nothing either in the supply or demand situation at present to call for lower prices for cotton.

The following is the closing, highest and lowest of June 7, also the closing of a year ago.

	Closing. June 7.	Closing. June 6.	High.	Low.	Closing last year.
June	22.58@22.65	22.85@22.88	....	....	12.57@12.62
July	22.68@22.70	22.95@22.96	23.01	22.63	12.67@12.68
August	22.50@22.52	22.75@22.78	....	....	12.75@12.77
September	22.12@22.15	22.45 bid	22.32	22.32	12.78@12.81
October	21.98@22.01	22.31@22.35	22.40	21.95	12.81@12.82
November	22.12@22.15	22.33 bid	22.31	22.31	12.88 bid
December	21.98@22.01	22.41@22.43	22.51	22.04	12.98@12.99
January	22.11@22.12	22.46@22.48	22.55	22.10	13.06@13.08
March	22.27 bid	22.60@22.62	22.72	22.35	13.19@13.20
May	22.43 bid	22.75 bid	....	....	13.31@13.32
Market	Steady.	Steady.			Easy.
Transactions at	22.58	22.85			12.57

EGYPTIAN COTTON

The Bulletin of the Alexandria General Produce Association for April, which was issued on May 2 and arrived here on June 3, states that the bad weather prevalent in March somewhat retarded work in the cotton fields of Lower Egypt, in consequence of which sowing was late in several districts but was nevertheless completed. In Upper Egypt sowing was normally carried out and finished. The plants are in good condition and are making good progress; in Upper Egypt the plants are further advanced than last year.

The acreage under cotton is somewhat in excess of the 1916 planting. In Lower Egypt the planting of Sakelarides has been increased, to the detriment of other varieties; in Upper Egypt Achmaoui was sown almost exclusively. Water everywhere is plentiful. In Lower Egypt sporadic cases of cut-worm have been reported. Resowing has been insignificant.

Advice by mail from Alexandria under date of May 4, shows the future market there much easier, prices losing about $1.75 for Old Crop and $2.50 for New Crop.

The continued weakness of the Liverpool Egyptian market and the difficulty of shipping to America explain the decline to some extent.

ALEXANDRIA STATISTICS FOR THE WEEK ENDING MAY 4, 1917.

	Arrivals. Cantars.	Exports (Bales). England.	Continent.	America.	Exports. Cantars.	Total stock Cantars.
This week	84,610	1,434	830	8,256	80,197	*942,347
Same week 1916	10,163	1,898	1,173	1,049	31,392	536,810
Same week 1915	60,574	3,011	1,979	1,634	50,215	1,535,788
Since Sept. 1, 1916	4,938,373	300,167	105,325	120,965	4,021,026	.....
Same time 1915	4,503,354	297,659	163,337	178,208	4,856,874	.....
Same time 1914	6,148,208	310,336	260,126	138,724	5,378,720	.....

* 68,000 Cantars shipped to Japan from Port Said deducted.

Spot transactions were rather restricted, but prices remained practically unchanged.

The future source of the market remains uncertain and will be governed principally by political events and the government's decision as to freight. Pending developments, caution is being generally shown.

SEA ISLAND COTTON

Advices from the Eastern cotton districts are more encouraging than of late. The rising temperature and a moderate rainfall have made for some improvement in the condition of the growing crop. Trading for the time being will be largely based upon weather conditions throughout the belt, and, as cotton is selling at the highest price for many years, fluctuations are likely to be rapid in both directions. With several weeks of warm weather and moderate rains, where needed, an improvement in the crop can be expected.

YARNS

Cotton yarn prices are unsettled and there is a wide range of quotations. All the elements of strength that have been prevailing in the trade continue in force. Spinners are generally well sold forward; they are, therefore, independent and some of them are unwilling to consider future business unless it shows them a better margin of profit. Spinners look for a small cotton crop, though a good growing month in July might upset their view. The new child labor law that will soon go into effect, will add to cost of mill operations in the South.

Many good orders are running through the next three months, but it is there the spinners may have open spots or exceed their estimated production that they may offer small quantities of yarn below top quotations.

FABRICS

The shortage of looms for business in regular channels and the prospective shortage of labor are factors to which a large part of the cotton goods market's strength is due. Government work is steadily leaving less and less machinery available for the civilian trade.

There are strong indications of further advances in cotton goods prices evident on all sides. In addition to the rising cost of labor and raw cotton there is the price of coal and the reported difficulty of getting quick shipments into New England. Some of the large Eastern mills which consume from 75 to 125 tons of coal daily, find it hard to maintain a reasonable supply on hand.

TIRE FABRICS

The tire fabric situation continues to be very uncertain and all indications point to at least a temporary shortage of the best qualities of these materials which are made of Sea Island and Egyptian cottons. Some authorities even go so far as to state that the shortage in long staples may make it necessary for manufacturers to design automobile tires that can be made with other qualities of fabric. However, most of the large tire manufacturers have their requirements covered and there are good reasons to believe that there will be no substantial curtailment in the production of tires due to a shortage of suitable fabrics. Prices, it is thought, will be increased on future contracts.

None of the manufacturers of Sea Island and Egyptian tire fabrics report any of their looms being turned over to work on other articles, but this is happening for looms working on American peeler tire fabrics. The scarcity of long staple cotton has already resulted in considerable use in cheap tires of fabrics weaved from mixtures of Sea Island and Egyptian cotton with Peelers. The result has been an advance in the prices of American Carded Staple and Peelers fabrics.

The prices that can be quoted for tire fabrics are largely nominal for the reason that the cotton supply is so absolutely uncertain.

HOSE AND BELTING FABRICS

The heavy demand the war is making on all industries naturally affects the hose and belting fabric markets, for all industries are working full force and require large quantities of mechanical goods. This upward tendency has been further stimulated by the fact that many looms working on these fabrics will be turned over to other work, also by the increasing prices of raw cotton, labor, coal and all that enters into cost of production.

DRILLS, SHEETINGS AND OSNABURGS

The heavy demand the Government itself and private concerns working on Government orders have made on these fabrics and the increased cost of their production combine to force their prices upward. The shortage and unusually high price of burlaps have driven many users of the jute weaves to use cotton fabrics, especially osnaburgs.

Government orders alone have amounted to millions of yards and many types of drills, sheetings and osnaburgs are hard to obtain at almost any price.

GARMENT CLOTH

The decision of the Government to allow the use of worsted fabrics in uniforms has not had the expected effect of easing the prices for woolen fabrics but has resulted in greatly increasing the prices asked for worsted materials. There is a decided shortage of wool and cotton is high and scarce.

It is said that Australia has large quantities of wool ready for export. If ships can be secured to move some of it to America the situation in the garment cloth industry here would be relieved.

BURLAPS

There is little new to report in the burlap market. Trade continues to be quiet and there are very few goods to offer. Ten ounce 40-inch burlap is now selling at 12.50 for spot and these goods are either actual spots or from steamers now here. Spot goods throughout the entire market are well taken up and goods afloat are about all sold ahead. These latter are expected anywhere from a week to six weeks hence.

No change is reported in the financial situation at Calcutta. The matter of exchange continues practically impossible and no further cable has been received from India.

NEW YORK QUOTATIONS

TIRE FABRICS.

17¼-ounce Sea Island, combed,	sq. yd.	$1.50@1.60
17¼-ounce Egyptian, combed		1.35@1.40
17¼-ounce Egyptian, carded		1.30@1.40
17¼-ounce Peelers, carded		0.75@0.80
17¼-ounce Peelers, combed		0.95@1.00
American Carded Staple, 12 to 20 yarn, per lb. (pound basis)		.55
American Carded Staple, 8 to 10 yarn, per lb. (pound basis)		.50

MECHANICAL DUCKS

Hose (spot)	lb.	.42
Hose (future)		.41
Belting (spot)		.42
Belting (future)		.42

DUCKS

Single Filling (pound basis)	lb.	$ .42
Double Filling (pound basis)		.48

DRILLS

37-inch 2.35-yard	yd.	.17½
37-inch 2.75-yard		.14
37-inch 3.00-yard		.13
37-inch 3.25-yard		.12½
37-inch 3.50-yard		.11¾
37-inch 3.95-yard		.10¼
38-inch 2.00-yard Southern	lb.	.40
38-inch 2.00-yard Northern		.43
40-inch 2.47-yard Southern	yd.	.16
40-inch 2.47-yard Northern		.18
52-inch 1.90-yard Southern		.21
52-inch 1.90-yard Northern		.23
52-inch 1.95-yard Southern		.20
52-inch 1.95-yard Northern		.20
60-inch 1.52-yard Southern		.26¼
60-inch 1.52-yard Northern		.27

SHEETINGS

40-inch 2.35-yard	yd.	.16
40-inch 2.50-yard		.14½
40-inch 2.85-yard		.13½
40-inch 3.00-yard		.13½
40-inch 3.25-yard		.12
40-inch 3.60-yard		.11¾
40-inch 3.75-yard		.10½
40-inch 4.25-yard		.09½
38-inch Jacket Cloths	lineal yd.	.16¾@.17

TWILLS FOR PROOFING

37-inch 2.85-yard	yd.	$ .14½
37-inch 2.35-yard		.16½
37-inch 2.10-yard		.18¼

COTTON STOCKINETTES
(52 inch.)

E—11½-ounce	yd.	.70
A—11 -ounce		.50

BURLAPS
(Spot Carload lots.)

40-inch 7½-ounce	per 100 yards	$9.50
40-inch 8 -ounce		9.75
40-inch 10 -ounce		12.50
40-inch 10½-ounce		12.75

Chemicals, Compounding Materials, Etc.

NEW YORK, June 8, 1917.

The market for chemicals and compounding materials was featured by numerous price changes. The principal change was the advance in American process zinc oxide for delivery over the second half of the year. Lead pigments were advanced to-day, due to the strength in the metal. There was a strong market for sulphur and according to reports producers are slow in making deliveries. Antimony oxide and sulphuret ruled firm. Turpentine was easier, but a firm market obtained for other solvents. Dry colors were more or less nominal.

ANILINE OIL

A few resale parcels were traded in at 30c. per pound, but towards the close 31c. appeared to be the inside quotation of leading producers. The market was firmer in all quarters.

ANTIMONY

The elimination of the 10 per cent import duty from the Revenue Bill eased the situation to some extent, but failed to influence prices. Red sulphuret held at 25c., with the golden at 28c. and the crimson at 52c.

BENZOL

Producers continued to quote 55 @ 60c. per gallon for pure benzol, despite the fact that spot stocks were moderate and business fairly active.

LEAD PIGMENTS

Manufacturers advanced prices to the extent of ½c. per pound, due to the steady rise in the cost of pig lead. Standard dry white lead closed at 11 @ 11½c., with the sublimed at 10½ @ 11c. and the red oxide at 12½ @ 13c. Litharge closed at 12 @ 12½c.

SULPHUR

Manufacturers are badly in need of spot supplies and a very tight situation is reported in the sulphur market. Producers are still behind in deliveries. Crude sulphur is quoted at $45 @ $50 per ton, f.o.b. New York. Commercial sulphur held at $2.25 @ $2.35 per 100-lbs., the inside figure being for car-lots, in bags. Refined flour held at $2.85 per 100-lbs. in bbls., car-lot basis.

ZINC OXIDE

American process zinc oxide for delivery over the second half of the year was advanced ½c. by producers, compared with the prices which obtained over the first six months. The "XX" brand is now quoted at 10¼c. per pound, in 50-ton lots, while the selected is held at 10⅝c. for 50-ton lots and at 10⅞c. for car-lots and at 11c. for less than car-lots.

Prices Current for Chemicals, Fillers, Colors, etc.

Acetone	lb.	.29½ @	.30½
Acids, Acetic, 28%	lb.	.05 @	.05½
Carbolic, C. P.	lb.	.43 @	.45
Cresylic, 95%	gal.	1.10 @	1.15
Muriatic, 20 deg.	lb.	.01½ @	.01¾
Muriatic, 22 deg.	lb.	.01¾ @	.02
Acids, Nitric, 38 deg.	lb.	.06½ @	.07
Nitric, 40 deg.	lb.	.07 @	.07½
Sulphuric, 60 deg.	lb.	.01 @	.01½
Tartaric, crystals	lb.	.78 @	.80
Aluminum Flake	ton	22.00 @	24.00
Aniline oil	lb.	.31 @	.33
Antimony, metal, spot	lb.	.22 @	.23
Oxide	lb.	.18 @	.20
Sulphuret, red	lb.	.25 @	.26
Sulphuret, golden	lb.	.28 @	.30
Sulphuret crimson	lb.	.52 @	.55
Asbestos	ton	35.00 @	50.00
Asphaltum, Egyptian	lb.	.20 @	.25
Domestic	ton	18.00 @	25.00
Barium sulphate, technical	lb.	.04¾ @	.05¾
Chloride	lb.	.04½ @	.04¾
Barytes, prime white imported	ton	38.00 @	40.00
white, domestic	ton	28.00 @	32.00
off color, domestic	ton	22.00 @	24.00
Benzol, pure	gal.	.55 @	.60
Beta-naphthal, sublimed	lb.	.75 @	.80
unsublimed	lb.	.70 @	.75
Blacks, Drop	lb.	.07 @	.12
Ivory	lb.	.16 @	.30
Carbon gas	lb.	.25 @	.35
Lampblack	lb.	.14 @	.20
Mineral blacks	ton	25.00 @	30.00
Blues, Prussian	lb.	.75 @	1.50
Soluble	lb.	1.45 @	1.75
Ultramarine	lb.	.25 @	.42
Browns, Sienna, Italian, burnt and powdered	lb.	.06 @	.10
burnt, lump	lb.	.04¼ @	.06
American, burnt and powdered	lb.	.02 @	.03
Umber, Turkey, burnt, powdered	lb.	.04 @	.05
American, burnt	lb.	.03 @	.03½
Cadmium sulphide, yellow	lb.	3.70 @	3.80
Carbon bisulphide, bulk	lb.	.06½ @	.07½
tetrachloride, drums	lb.	.17 @	.17½
Caustic Soda, 76 @ 78%	lb.	.06½ @	.07
Chalk, precipitated, light	lb.	.04½ @	.04¾
heavy	lb.	.03¾ @	.04¼
China clay, domestic	ton	15.00 @	20.00
imported	ton	25.00 @	35.00
Fossil flour	lb.	.06 @	.10
Gilsonite	ton	40.00 @	45.00
Glue, extra white	lb.	.26 @	.35
medium	lb.	.28 @	.25
low grade	lb.	.20 @	.22
Glycerine, C. P. (drums)	lb.	.61 @	.62
Graphite, flake (bbl.)	lb.	.25 @	—
powdered (bbl.)	lb.	.10 @	—
Green, chrome	lb.	.32 @	.50
Ground glass (fine)	lb.	.02½ @	—
Hexamethylene	lb.	.70 @	.75
Indian red, standard	lb.	.07 @	.09½
Infusorial earth, powd'd.	ton	60.00 @	—
bolted	ton	70.00 @	—
Iron oxide, red, reduced grades	lb.	.04 @	.05
red, pure, bright	lb.	.12 @	.14
Lead, red oxide of	lb.	.12½ @	.12¾
sublimed blue	lb.	.10½ @	.11
white, basic carbonate	lb.	.11 @	.11½
white, basic sulphate	lb.	.10½ @	.11
Lime flour	lb.	.01½ @	.01¾
Litharge	lb.	.12 @	.12½
English	lb.	*.12 @	.13
sublimed	lb.	.11¼ @	.11½
Lithopone, domestic	lb.	.06¼ @	.06¾
Magnesia, carbonate	lb.	.12 @	.14
calcined, heavy	lb.	.12 @	.14
calcined light	lb.	.65 @	.70
Magnesite, calcined, pwd.	ton	65.00 @	70.00
Mica, powdered	lb.	.03¾ @	.05
Mineral rubber (asphaltum base)	ton	40.00 @	60.00
Naphtha, motor gasolene (steel bbls.)	gal.	.24 @	—
68 @ 70 degrees (steel bbls.)	gal.	.30 @	—
70 @ 72 degrees (steel bbls.)	gal.	.31 @	—
73 @ 76 degrees (steel bbls.)	gal.	.33 @	—
machine (wood bbls.)	gal.	.41 @	—
Oil corn, crude	cwt.	15.75 @	16.00
corn, refined	cwt.	17.01 @	17.06
linseed (bbl.)	gal.	1.20 @	1.22
palm, Bonny	lb.	.15½ @	.16½
pine, yellow	gal.	.54 @	.56
rapeseed, refined	gal.	1.40 @	—
rapeseed, blown	gal.	1.50 @	—
rosin, first rectified	gal.	.38 @	.40
tar (commercial)	gal.	.25 @	.26
Orange mineral, American	lb.	.14 @	.14½
imported	lb.	.16 @	.20
Petrolatum, bbls., amber	lb.	.04½ @	.04¾
pale yellow	lb.	.04¾ @	.05
Pine tar	bbl.	11.50 @	12.00
Pitch	bbl.	4.25 @	4.75
Plaster of paris	lb.	1.50 @	1.70
Rosin (common to good), @ 280 lbs.	bbl.	6.40 @	6.50
Rotten stone, powdered	lb.	.02½ @	.04
Rubber substitute, Black	lb.	.11 @	.13
white	lb.	.15 @	.18
brown	lb.	.14 @	.15
Shellac, fine orange	lb.	.65 @	—
T. N.	lb.	.60 @	—
Bleached, commercial	lb.	.59 @	.60
Bleached, bone dry	lb.	.72 @	—
Silex (silica)	ton	24.00 @	34.00
Soapstone, Powdered,	ton	14.00 @	20.00
Starch, corn, powdered	lb.	.05 @	.05¼
Sulphur, crude	ton	*45.00 @	50.00
Sulphur, roll, per 100 lbs. in	bbls.	2.70 @	3.00
flour		2.85 @	3.25
flowers		3.05 @	3.45
Talc, American	ton	12.00 @	18.00
French	lb.	.15 @	.22
Toluol, pure, in drums	gal.	2.00 @	2.10
Tripolite earth	ton	60.00 @	65.00
Turpentine, pure gum spirits	gal.	.45 @	.46
wood	gal.	.45 @	.42
Venice, artificial	gal.	.12 @	.13
Vermilion, Chinese	lb.	2.50 @	2.75
English	lb.	1.75 @	2.25
Wax, beeswax, crude yel.	lb.	.43 @	.45
ceresin, white	lb.	.18 @	.22
carnauba, No. 3	lb.	*.38 @	.40
ozokerite, black	lb.	*.60 @	.70
green	lb.	*.80 @	.90
montan	lb.	*.30 @	.40
paraffin, refined 118/120 m. p. (cases)	lb.	.08⅜ @	.09
123/125 m. p. (cases)	lb.	.09¾ @	.10
128/130 m. p. (cases)	lb.	.10¼ @	.10¾
133/136 m. p. (cases)	lb.	.11⅜ @	.12
crude, 117/119 m. p. (bbls.)	lb.	.07½ @	.08
yellow, 124/126 m. p. (bbls.)	lb.	.08 @	.08½
Whiting, commercial	cwt.	.95 @	1.10
Paris, white, American	cwt.	1.25 @	—
English cliffstone	cwt.	1.50 @	—
Yellow ochre	lb.	.03 @	.05
chrome, c. p.	lb.	.24 @	.28
Zinc oxide, American process, horsehead brand	lb.	†.10¼ @	.10½
selected	lb.	†.10⅝ @	.11
"XX red"	lb.	†.10¼ @	.10½
French process, green seal	lb.	.15½ @	.16
red seal	lb.	.15 @	.15½
white seal	lb.	.16 @	.16½
Zinc substitutes	ton	30.00 @	35.00
Zinc sulphide, pure	lb.	.07½ @	—

†Contract prices.

*Nominal. †Contract prices.

Crude Rubber Market

NEW YORK, June 7, 1917.

The market for crude rubber developed a decidedly weak undertone during the past two weeks. Plantation grades went off to the extent of 7½c. per pound, while the Brazilian descriptions show a net loss of 4c. The decline was brought about chiefly by the action of the Senate Finance Committee in eliminating the 10 per cent horizontal import duty from the proposed revenue bill. The fact that importations of crude rubber have been larger, indicating that the freight situation is not so very bad, aside from the abnormally high rates obtaining, added to the weakness. It was pointed out in importing circles that the drop in plantation grades amounted to approximately 10 per cent, the equivalent of the proposed import duty.

As usual, the demand was exceedingly quiet during the period of weakness. Manufacturers are credited with being fairly well covered and with spot stocks ample selling pressure was in evidence from time to time. Importers claim that the transportation situation in the Far East is in a badly crippled condition and shipments are being made under great difficulties and at constantly rising costs.

In London the market has been under pressure, due to freer arrivals and the lack of speculative interest. First latex pale crepe closed today at 34¾d per pound, which compares with 36¼d a fortnight ago.

The general impression at the close was that the decline, for the present, has run its course. The movement of prices, according to trade authorities, is today more than ever, a question of supply and demand. The supply at principal producing centers is ample, but should the problem of moving these stocks take a turn for the worse prices might again move upward sharply. Imports of pure India rubber for the nine months ending with March amounted to 212,556,671 pounds, as against 186,973,556 pounds during the corresponding period a year ago, and 116,506,851 pounds in 1915.

First latex pale crepe closed barely steady at 76½c. spot, 75½c. June-July shipment, and 74c. for July-December. A fortnight ago importers were willing to discount the far-off position 5c. per pound, whereas the difference today is but 2½c. per pound. Ribbed smoked sheets were quoted on a parity with latex.

Para up-river fine on the spot was offered at 72½c., as against 76c. two weeks ago. Up-river coarse showed but little change, closing at 52c., spot delivery. Upper caucho ball was unsettled at 49½c.

Centrals were inactive and easy in sympathy with competing grades. Esmeralda was offered at 48c., with prime Corinto at 48½ to 49c. Guayule is scarce, and the price of 45 to 46c. is wholly nominal. Imports of Guayule for the nine months ending with March amounted to 1,624,233 pounds, as against 2,001,708 pounds for the same time a year ago and 3,534,012 pounds in 1915. Current prices follow:

	Spot.	June-July.	July-Dec.
Para—Up-river fine	72½	72	..
Up-river medium	68	67	..
Up-river coarse	52	51	..
Caucho ball	49½	49	..
Islands fine	71	70½	..
Islands coarse	32	31½	..
Cameta	35	34½	..
Madeira fine	74	73	..
Ceylons-Smoked sheets, ribbed	76½	75½	74
Smoked sheets, plain	76	75	74
First latex pale crepe	76½	75½	74
Amber crepe	72½	69½	68½
Clean brown crepe	69½	68½	67½
Centrals—Corinto, prime	48½	48	..
Esmeralda, prime	48	47½	..
Mexican scrap	47	47	..
Balata, sheets	*63	..	..
Balata, block	*56	..	..
Guayule	45	..	..
Africans—Rio Nunez, string	*67	..	..
Massai, red	*55	..	..
East Indian Pontianak	14½	..	12
Palembang	15	..	12½

* Nominal.

Scrap Rubber Market

Domestic scrap—	
Boots and shoes, No. 1, per lb.	9¾@10
Trimmed arctics	7½@ 7⅝
Bicycle tires	5 @ 5½
Auto tires	7 @ 7½
Solid tires	6¼@ 6⅝
No. 1 inner tubes	26½@27½
No. 2 inner tubes	12¾@13¼
Hose	1¾@ 2
Red tubes	12¾@13¼
Black rubber	3 @ 4

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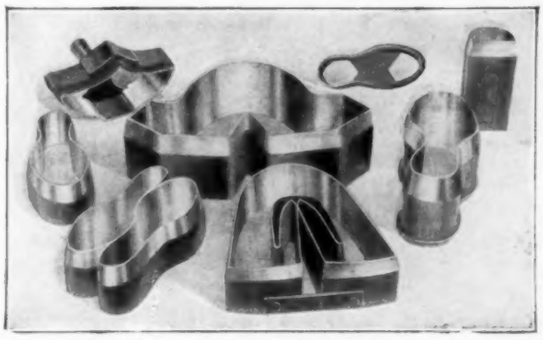

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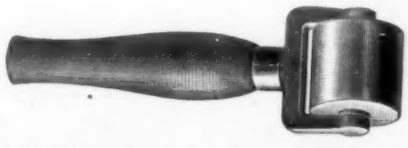

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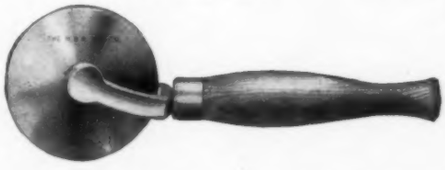

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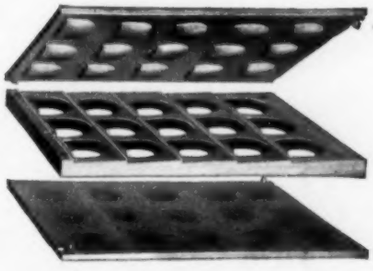

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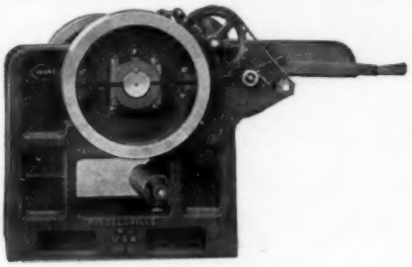

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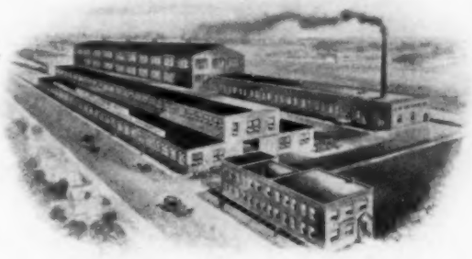

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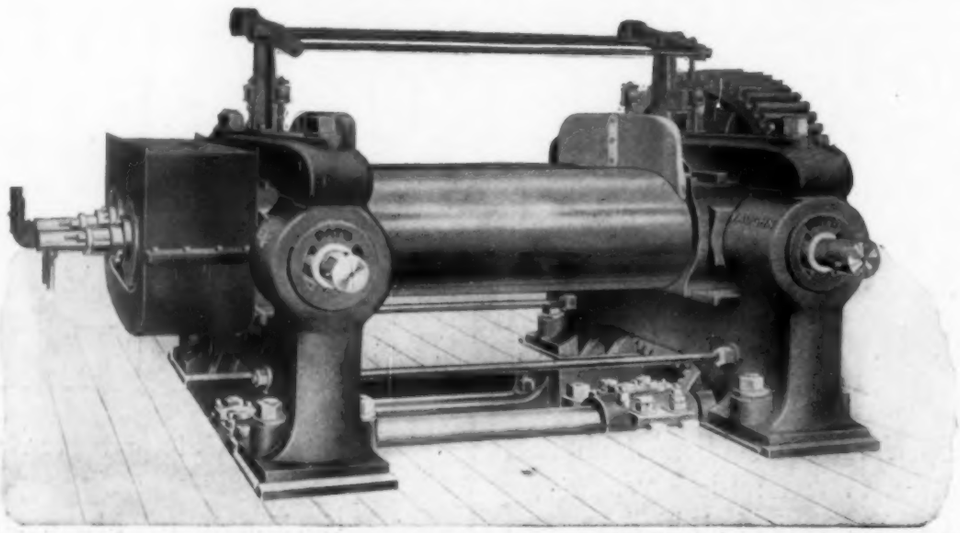

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